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ORIGINAL ARTICLES.

THE MORTALITY OF APPENDICITIS.*

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It has been difficult for me to select a subject about which much has not been written by the members of this society. The only solution of the problem has been to bring before you a part of some great subject, and dwell briefly upon that particular point to the exclusion of the subject in general. In accordance with this idea, I have chosen for my paper this evening, the mortality of appendicitis, its cause and limitation. There is probably no surgical disease about which so much has been written as appendicitis. The subject is trite and threadbare in many respects. There is little to be learned in regard to the etiology, symptomatology, and diagnosis of the disease. The operative technic can be but little improved upon in its present state of perfection. The mortality under proper antiseptic and aseptic conditions is so low, that in the nature of the disease it will never in all probability, be brought much lower. The writer's apology in offering some remarks upon the mortality of the disease, is the hope that others will contribute to this part of the subject, since in this way only can the profession arrive at a conclusion as to the progress which modern surgery has made in this direction. It is only by a careful study of the mortality under given conditions, that any improvement can be made in the direction of diminishing in the future, what now seems to be the lowest mortality that can be obtained. The percentage in these days of aseptic surgery in this abdominal operation, is less than the percentage in the simple amputation of the finger in the pre-antiseptic days. It would seem that surgery had reached its climax in regard to mortality in operation for the relief of appendicitis, yet the time will never come when there will be no death rate. Complications are certain to arise that are beyond the control of the surgeon. Crural thrombosis, intestinal obstruction, acetoneemia, embolism, shock of operation, intercurrent affections, all afford examples to show that some mortality must always exist. It is with a view of possibly further reducing the small mortality, that this contribution is made. If a fraction of a per cent. can be gained in the reduction of the mortality, it is an advance in the right direction. The experience of surgeons during the past few years has demonstrated new methods, has pointed out

new ways, and has discovered new facts, all of which tend to reduce the mortality. It seems now the only thing that is left is to combine the various views of experienced surgeons into some uniform plan of treatment, in order to produce the best results. There appears to be a fair consensus of opinion as to the advisability of removing the appendix in those cases where the attacks have been multiple, or even solitary. There is also a uniformity of opinion in reference to an operation in diffuse peritonitis as the only measure to save life. There is likewise no difference of opinion as to the propriety of an operation in abscess cases in order to afford the patient the best chance for recovery. There is however, some variation of opinion among the best surgeons as to the necessity of immediate operation in cases of catarrhal appendicitis. Some surgeons advocate an operation in all cases at once, even within the first twelve hours, other surgeons whose experience is just as extensive, counsel delay if the attack is mild, with the expectation of removing the appendix in the interval, since this operation is safe in the hands of a well-trained surgeon. It is in this type of cases that surgeons are not in perfect accord. The question that forces itself upon us for a solution is: Can the mortality of the disease be reduced by immediate operation in all cases, or by delay in mild cases, and the removal of the appendix after the attack has subsided. It has been proved by the accumulated experience of surgeons that interval cases have practically no mortality. It has been shown also that operations during an attack, even though early, have been attended by some mortality. As to which of these two courses to pursue, in all cases it seems to the writer that the only safe plan is to decide each case upon its merits. There may be special reasons when an immediate operation in a given case is the better plan of procedure, and likewise there may be special reasons in another case why delay is the better course to pursue. Such factors as environment, the presence of a skilled surgeon, capable assistant and good nurse, proper sterilization, all enter into the question as to the wiser course to pursue in a given case. It is only by an exhaustive study of all facts in each case, that a plan can be adopted that will afford the patient the best chance for recovery which is tantamount to saying with the least possible mortality.

The mortality in appendicitis in all cases under medical treatment is about 16 per cent., with 30 per cent. of relapses, while in diffuse suppurative peritonitis it is almost uniformly fatal. The mortality in appendicitis in all cases under surgical treatment is about 4 per cent., and with no relapses, and in diffuse suppurative peritonitis the mortality in the published statistics is from 31

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per cent., the lowest, to 91 per cent., the highest, and in the writer's eleven consecutive cases of diffuse suppurative peritonitis the mortality was zero. It is stated by Fowler that "13 per cent. of all cases develop diffuse peritonitis; but in order to save 13 per cent., 100 successful laparotomies must be performed," and they must be performed under slightly unfavorable circumstances. We might go still further, and take most extreme views and operate on every child born into the world. This plan would annihilate the disease; but it would be performing an operation, the necessity for which might never arise in the large majority of the cases. The writer, after studying all available statistics of recent origin, and comparing them with his own, has come to the conclusion that any case after thirty-six hours that is not improving in every way, should be operated upon at once, since Fowler has demonstrated that operation in forty-eight hours in 127 cases 83 per cent. recovered. When the cases were left to the fourth day there was 60 per cent. recoveries, to the fifth and sixth day, 58 per cent., to the seventh to the eighth day 50 per cent., and to the ninth to tenth day 33 per cent. The value of the early operation depending upon the condition of the patient in forty-eight hours after the onset of the attack is thus obvious. The results would be still better if the operation was performed within thirty-six hours. Now let us suppose the simple case is not operated upon at the end of thirty-six hours; but is left to recover without operation. If this type of case is now operated upon, say a month after the attack, the recoveries, debarring an accident, ought to be 100 per cent. This line of practice seems to yield the best results and is extremely radical under certain conditions and quite conservative under other conditions. This plan of allowing the simple catarrhal cases which are doing well after thirty-six hours to recover without immediate operation, and relegating them subsequently to the group known as interval cases, and the prompt operation after thirty-six hours when the cases are not doing well, seems to hold out the best prospects of recovery. The pendulum has swung too far toward indiscriminate operation, but now the introduction of the interval operation has brought the pendulum back to swing within the proper limits. There are some cases where the surgeon ought not to wait even thirty-six hours, but operate at once; it may be within twelve hours after the onset of the disease. These cases are rare; but they occasionally occur, and in this type of the disease no time must be lost to save the patient, since early operation is the only salvation. If a rule is laid down which applies to the surgeon to operate in all cases immediately, this rule would be inapplicable in country practice to the family physician. Morris states that "a surgical death rate of 2 per cent. is illegitimate in cases operated upon in the first attack before infection has extended beyond the confines of the appendix." Such a statement is misleading because there is bound to be, and there always will

be a death rate in certain varieties of bacteria, no matter how soon the operation is performed. Bull has collected statistics in which he gives a death rate of about 2 per cent., but those cases are all interval cases collected from various sources. It is in this class of cases the writer believes that there should be no mortality at all, debarring an accident. Oschner has recently contributed some statistics from his own operations during one year, which reflect great credit upon his excellent work. In the acute cases there was a mortality of 3 per cent., and in the chronic cases there was a mortality of 1 per cent. In the entire number of cases, both acute and chronic, there was a mortality following the operation of 2 per cent. Deaver has also recently contributed some statistics from his own operation extending over a period of one year, which likewise reflect great credit upon his surgical skill. In the cases of general and diffuse peritonitis there was a mortality of 31 per cent. In the cases in which there was abscess there was a mortality of 12 per cent. In the cases in which the disease was confined to the appendix, with stricture, ulceration, and necrosis of the mucous membrane there was a mortality of 0.8 per cent., and finally in all the cases operated upon, the total mortality was 5 per cent. Richardson's published statistics are practically the same and the result of these various operators give an idea of what surgery has accomplished. In a study of the last 119 cases of appendicitis occurring in the practice of the writer up to April 1, 1903, the mortality of the disease, irrespective of operation or of any special plan of treatment, was a little over $1\frac{1}{2}$ per cent. In the cases treated without operation, in which the attack was a mild catarrhal one, and in which the patients were not operated upon during the attack, the mortality was zero. In this group of cases in which conservatism was employed for special reasons, the appendix was in many cases subsequently removed owing to repeated attacks, and the mortality was zero. In the group of cases in which the appendix was gangrenous and had ruptured into the peritoneal cavity with a general purulent peritonitis, of which there were 11 cases, the mortality was zero. In the cases in which there was an acute perforative appendicitis, and in which the appendix was gangrenous, and found in a circumscribed abscess cavity, the mortality was 7 per cent. If now in this group all the operative cases are collected, both acute and chronic, the death-rate was 2 per cent. If the two fatal cases in the entire list of 119 cases are eliminated, which were hopeless from the start, but which were operated upon because it was offering the only possible chance of life, forlorn as the prospect was, the mortality of the disease was zero. The mortality of the operation both for acute and chronic appendicitis was also zero. Such cases as the two that died will always occur, and will always prevent the absence of mortality in the disease. In other words, if the two fatal cases are eliminated on the ground that surgery is powerless to save where complications, such as empye-

ma and abscess of the lung, exist, the mortality in the medical and operative treatment of this disease in 117 consecutive cases was zero. The two deaths, which make the mortality of the operation in all cases about 2 per cent., which in itself is insignificant when the nature of the disease is considered, deserve special consideration.

The first death was due to alcoholism and empyema and exhaustion in a tramp who was found by the police in the hallway of a tenement house upon a very cold night. He was brought to St. Vincent's Hospital in an exceedingly grave condition. The second death was due to an abscess of the lung consecutive to a subphrenic abscess caused by a suppurative appendicitis. In a study of these two cases of appendicitis it is evident that the special conditions in each case indicate that they belong to a class that no surgeon can save. The first case was operated upon to offer the man his only hope, and yet the conditions were such that practically precluded any prospect of success. The second case was hopeless, since the disease involved simultaneously other and vital organs. These two cases were fatal from the start, or, at least, fatal at the time when seen by the surgeon, and involved a general infection too widespread to expect any result from operative interference. When it is considered that in this list there were eleven cases of perforation with pus free in the peritoneal cavity and general peritonitis, all of which recovered, it is evident that modern surgery has advanced to such a point that little, if any improvement can be made in the treatment of this heretofore fatal disease. In other words, modern surgery has almost completely gained the mastery over the disease, since a mortality of about 2 per cent. can hardly be expected to be improved upon in the future.

Before discussing the operative cases, the writer desires to express his views in a most emphatic way in regard to operative interference in the catarrhal cases. These views especially refer to patients seen by a surgeon whose only claim to the title is the fact that he is licensed to practice. He may have no competent assistants, and the environment bad in the extreme. A patient under such circumstances is far safer in catarrhal appendicitis, to be treated by lavage of the stomach, the ice coil, the abstinence from food, except by the rectum, a plan suggested by Ochsner, than to be operated upon by a novice, whose experience in abdominal surgery is confined to the knowledge obtained from a text-book. The mortality of the simple operation is appalling in the hands of an inexperienced surgeon. The writer has knowledge of one surgeon who operated upon 19 consecutive cases with 19 deaths. After the attack is over, the appendix can be removed as an interval operation with safety if performed by a well-trained surgeon. The writer once saw a surgeon operate in which he attempted to tie the appendix off about midway between the tip and the base. A kindly remonstrance or timely suggestion in this case saved the patient's life without any doubt. If the plan of treatment sug-

gested by Ochsner is not followed by marked relief within twenty-four hours, operation should be immediately performed. There is no doubt that as a rule to which exception can occasionally be found, and the simple catarrhal cases appear to be one of the exceptions, these cases recover without serious disturbance, and the appendicular colic subsides, while the appendix does not become seriously altered in its anatomical or pathological aspect, and the parts practically resume their normal condition. This class of cases must not be confounded with another class in which inflammation is present, and in which the process is likely to go on to suppuration. The absence of any improvement in thirty-six hours, and the exacerbation of all symptoms would relegate the simple catarrhal cases to a category requiring immediate operation. In the catarrhal cases the surgeon must not be induced to operate by a leucocytosis obtained by one single blood count. In one case of simple catarrhal appendicitis which the writer saw in a neighboring city, the blood count was 19,500, and every step was taken to operate as soon as preparations could be made. The patient was seen at midnight in a boarding school for young ladies, and the operation was to take place the next morning. A blood count was again taken, and instead of 19,500, the count was 9,000. All symptoms disappeared quickly, and the young girl was brought to New York, and after a few weeks the writer removed the appendix in the interval. The organ was slightly thickened and the lumen narrowed, but there was no evidence of there having been any pus or perforation at the time of the attack, when the blood count was so high. The blood count to be of any value must show a marked leucocytosis which constantly rises and continues high, since even in simple catarrhal appendicitis, a leucocytosis may be found which, however, is only temporary; but nevertheless misleading if a decision to operate is based upon the results of one single examination. Only recently the writer saw a patient with catarrhal appendicitis with a blood count of 16,000, the patient showed marked signs of improvement, and after recovery the appendix was removed as an interval case. The appendix was adherent to the intestine and omentum; but there was no evidence of any abscess. The single blood count in this case, as in the one just mentioned, was misleading as to the presence of suppuration. There is an inflammatory leucocytosis which must not be confounded with suppurative leucocytosis. The character of the leucocytes may throw some light upon the subject. There are two varieties of leucocytosis: one termed an absolute leucocytosis in which there is an increase in the total number of leucocytes, and a relative leucocytosis in which there is an excess of the normal percentage of the polymorphonuclear cells. Since the percentage of polymorphonuclear cells in the normal condition is about 70 to 75 per cent., an increase of 85 to 100 per cent. indicates some grave condition in which pus is present. The diminution in the absolute

leucocytosis is always a favorable sign, provided, however, there is no relative leucocytosis present. This fact must be always investigated in order to attach any value to the falling absolute leucocytosis. In other words, a falling absolute leucocytosis may portend good or evil, depending upon the percentage of the polymorphonuclear cells. It must be remembered also, that it is not always, though usually it is the case, that there should be an increase in the number of the leucocytes in order to have a leucocytosis even in inflammatory conditions. This clinical fact must be kept in mind since there may be no appreciable rise in the count, and yet the condition known as leucocytosis be present. It is the relative high percentage of the polymorphonuclear cells which establishes the presence of a relative leucocytosis just as the increase of the leucocytes gives rise to an absolute leucocytosis. In other words, it is not the increase in the number of white cells only that indicates a leucocytosis, since the proportion may be normal, or even sub-normal, and yet a leucocytosis be present, as is shown by the presence of the polymorphonuclear cells. This latter condition is often seen when the pus is walled off in a small circumscribed cavity. The presence of iodophilia is very strong evidence of the existence of pus. Leucocytosis may be absent in a mild catarrhal attack, also in small walled off cavity of pus and in the virulent form of infection, when the patient is too feeble to respond to the action of the toxemia. For the purpose of study these cases will be divided into three groups. In this way the mortality in each variety can be estimated. *First.* The appendectomies performed in the interval. *Second.* The acute perforative and gangrenous appendicitis with abscess. *Third.* The acute perforative appendicitis without a limiting abscess but with pus free in the peritoneal cavity, and with general peritonitis. (1) The appendectomies performed as interval cases all recovered without any complications. These cases can be set aside with the mild simple catarrhal cases without further discussion. (2) The cases of acute gangrenous appendicitis with perforation and abscess deserve special consideration. In this class there were 28 cases, and the mortality occurred in this variety and, strange to say in the 11 cases with perforation and pus free in the peritoneal cavity, no death occurred. It is difficult to understand why the mortality was present in these cases and absent in the cases of general peritonitis. The virulence of the infection offers the only explanation, and in this class of cases surgery has been and probably always will be powerless to avert the fatal issue. (3) The acute perforative appendicitis without a limiting abscess, but with pus free in the peritoneal cavity, and with general peritonitis.

The 11 cases of perforative and gangrenous appendicitis with general peritonitis form a unique group by themselves. Every one recovered, and no case has been omitted that occurred within the limit of time designated. It is in this class of cases that the real triumph for modern

surgery is demonstrated. It is expected in these days that all chronic cases will recover after interval operations. It is also expected that nearly all cases of perforative and gangrenous appendicitis with limiting abscess will recover. It is not expected that cases of general peritonitis will recover. These are the cases that are so fatal, and that contribute to the mortality of the operation. These 11 cases in the general list deserve special consideration, because they teach that modern surgery can still offer a chance of life in cases, where, until recently, death was an inevitable result. A brief report of the 11 cases will reveal the conditions present in each individual, the operative measures instituted for relief in each patient, and the final result in each case, not as regards life, since they all recovered, but as regards the after treatment, as it pertains to the repair of the wound, the absence of hernial protrusion, the disappearance of sepsis, the restoration of the function of the alimentary canal, and the improvement in the general health following so grave an operation performed for the relief of a condition which, until recently, was uniformly fatal. The writer will append an abstract of the 11 cases in which general peritonitis was present in order that an idea may be obtained as to the serious character of the cases in this group.

Case I.—Gangrene and perforation of the appendix with general peritonitis. Operation. Recovery. J. M., æt. eleven years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. Five days before admission patient was taken ill with violent cramps in the abdomen, and frequent attacks of vomiting. The bowels were constipated, but the day previous to his entrance into the hospital had moved once after a cathartic administered by the family physician. Upon admission patient was very anemic and poorly nourished. His face was pinched, haggard and careworn; the eyes were sunken and hollow; the body extremely emaciated; the tongue badly coated; the pulse was 100 and feeble; the temperature was 102° F., and the respirations were 26. The abdomen was very tympanitic and exquisitely tender to the slightest touch; the pain was very severe and diffuse, extending all over the abdominal cavity. No tumor was palpable, either externally or by rectal examination. The vomiting was persistent and at one time as much as six ounces of dark brown fluid was ejected. Upon examination of the patient the same evening of his admittance the writer decided to open the abdomen as the general tenderness and tympanites and distention were so severe that it was evident delay would not be advisable. The vomiting too, pointed to some grave lesion of the appendix, and his general condition made it necessary to interfere without delay.

Every preparation for an antiseptic operation was made, and after the administration of a small quantity of ether, laparotomy was performed. The usual incision was made and the peritoneal cavity opened. A very fetid, purulent, brown fluid flowed out in abundance from the general peritoneal cavity. The appendix was black, gangrenous

and perforated, and lying upon the anterior surface of the cecum, which was also black and gangrenous. Pus flowed freely out of the opening in the peritoneum, beneath which the coils of the intestine could be seen covered with a purulent exudation. The wound was now enlarged and some of the coils of intestine toward the median line were found to be adherent to each other. In other words, there was no abscess cavity, no limiting membrane shutting off the pus, which was free in the general peritoneal cavity.

The question as to the immediate treatment of the gangrenous parts was not considered. Obviously the cecum was destroyed, and any resection with approximation, under the existing local and general conditions, was impracticable. Conservative treatment of the wound offered to the little patient the safest course, and, accordingly, the parts were left as undisturbed as possible, in the hope that nature would come to the rescue.

The appendix was ligated and removed, and the wound left open for drainage and disinfection. The wound was still further enlarged in order to permit of irrigation. Hot bichloride of mercury of the strength of 1-2,000 was first used, and after the visible pus was washed out, a solution of peroxide of hydrogen was slowly and gently injected into the cavity, and this irrigation was quickly followed by a free ablution of the peritoneal cavity by hot saline solution. The wound having been thoroughly disinfected and drained, an antiseptic dressing was applied.

At the end of the third day a complete cast of the cecum came away, together with gas and feces. The slough was subjected to microscopic examination, and it was reported to be only the peritoneal coat of the cecum, and that the slough had invaded only the outer wall of the intestine except at one point, where the rupture occurred. On the seventh day another large slough was discharged, and then the wound began to show signs of repair, as the granulations were beginning to appear healthy. On the fourteenth day still another slough came away while gas and feces continued to be discharged. Upon the outer surface of the cecum bright red sensitive granulations sprang up and gradually filled up the space, covered in the cavity and closed the fistula.

Remarks.—In this case, as the result shows, nature will do miraculous things, if only the surgeon does not interfere. Any unnecessary handling of the parts beyond that which is absolutely necessary to permit the free disinfection and drainage, the breaking up of distant adhesions, the handling of the infected portions of the intestines, the breaking down of nature's barriers, the interference to bring about an anastomosis when the parts are gangrenous and ruptured, all tend to jeopardize the patient's life; whereas disinfection, drainage, a medium of interference sufficient to meet the requirements offer to the patient the best chance of life. The complete repair of the wound, the entire closure of the fistula, the reestablishment of the continuity of the bowel, all were brought about by simply aiding nature in her re-

parative work, without doubt any other course would have caused the death of the patient.

Case II.—Perforative appendicitis with general peritonitis. Operation. Recovery. B. C., æt. twenty-three years, was admitted to St. Vincent's Hospital suffering from a severe attack of appendicitis. Four days previous to admission to hospital patient was taken ill with violent pains in the abdomen accompanied by nausea. Upon admission to the hospital, at 7:30 P.M., her temperature was 102.4° F., pulse 100, and respirations 28. Her tongue was coated, great thirst was present, and the kidneys secreting but little urine. Upon examination, the abdomen was very tender and distended, especially in the right iliac region. An ice coil was applied; strychnine and nitroglycerin were administered at intervals during the night; the bowels moved as a result of an enema and the patient vomited only once, although nauseated. The writer saw the patient upon the following morning and found the temperature 99° F. The pulse 100 and respirations 22. The abdomen was more tender and the tympanitis increased. Owing to the rigidity of the abdomen, the general tenderness, the presence of nausea and vomiting the writer decided to operate. Upon reaching the peritoneum very fetid pus gushed out from the opening and the intestines were extremely congested and were covered with pus, lymph and a fibrinous exudation. There was no abscess cavity, no limiting membrane, no special adhesions shutting off any circumscribed area. Pus was free in the cavity and surrounded and covered the intestine. The appendix was not found in this case. This part of the peritoneal cavity was now walled off by gauze and an attempt was made to thoroughly irrigate the infected area with hot bichloride solution, peroxide of hydrogen and finally with sterilized water. When this part of the cavity was thoroughly cleansed the mops were removed and the adjacent intestines were washed with the same solutions, and the general cavity washed out with a hot saline solution. The wound was now drained, and the patient made a slow, but otherwise satisfactory, recovery.

Remarks.—This case shows very clearly that the condition of the pulse and temperature fails to offer a reliable guide as to the exact condition of the patient. A temperature of 99° F., is not expected in a gangrenous appendix with pus free in the cavity. Yet in this case the temperature failed to reveal the real pathological condition. The case is interesting too, in the fact that notwithstanding the presence of a large opening into the peritoneal cavity for several weeks, the abdominal wound closed.

Case III.—Acute perforative appendicitis, with general septic peritonitis. Operation. Recovery. M. McG., æt. eleven years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. Three days previous to her admission patient was taken ill with severe abdominal pains, nausea and vomiting. At the onset of the attack the pain was general over the abdomen, but later became

localized in the right iliac region. Upon examination, immediately after admission to the hospital the abdomen was found very distended, tympanitic and rigid, and also very sensitive to the touch. The temperature was 103.8° F., pulse 120, respirations 30. Having taken every antiseptic precaution and having placed the patient under the influence of ether, the abdomen was opened. Fetid pus flowed out of the opening into the peritoneal cavity and the intestines were congested, and covered with a fibrinous exudation and pus. There was no abscess cavity, no walling off of the infected area by adhesions, in fact, there was nothing that prevented the free access of pus into the general peritoneal cavity. The most infected area was now walled off with pads of sterile gauze and this infected area thoroughly irrigated with hot bichloride, then peroxide of hydrogen, and, finally, by hot saline solution in large quantities. The mops were removed and the same process repeated in the general cavity, and the wound was then left open for the purpose of drainage. Patient made an uneventful recovery, and suffered only as one would recovering from so serious a disease. The wound granulated and was entirely closed in, and the resulting cicatrix was firm, leaving no weakness in the abdominal wall.

Remarks.—In this case, as in the preceding one, the opening of the abdomen, the free irrigation of the localized area at first, and then the general irrigation, the provision for drainage offered the best chance for recovery. The appendices in these two cases could not be found as they had evidently sloughed and were in the debris forming the purulent collection. Only a limited search for the appendix was made in this case, since it is the meddlesome interference that causes death in these cases.

Case IV.—Acute perforative appendicitis with general septic peritonitis. Operation. Recovery. J. B., æt. twenty-six years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. The day previous to his admission he was taken suddenly ill with abdominal cramps, which he states were general. He vomited once only before coming to the hospital. He stated also that he had suffered from two previous attacks of like nature, one occurred a month before his present attack, and the other about two weeks before. Upon his admission to the hospital his temperature was 99.8° F., his pulse 72 and of good character, and his respirations 18. His tongue was coated, his urine was diminished in quantity, his bowels were constipated and great thirst was present. Upon examination the abdomen was slightly tympanitic and tender to the touch, and his right rectus muscle slightly rigid. The absence of vomiting and severe pain, the presence of practically normal temperature and pulse, and his general satisfactory condition, taking into consideration the very mild character of his two previous attacks, seemed to justify noninterference, at least for the present. As the writer had made arrangements to be out of the city the following day to remove an appendix, he left instructions with the house sur-

geon to have Dr. Bissell, the assistant surgeon, see the case for him, and in the event of any change, to operate at once. During the following thirty-six hours a marked change occurred. The patient began to vomit, his temperature rose to 102.6° F., his pulse, however, rose only to 84 and his respirations 26. The tympanitis was increased and great tenderness was present over the abdomen. The patient became very restless and there was evidence of very serious disturbance about the appendix. Notwithstanding the decline of two degrees of temperature the pulse increased to 106, and the general condition called for interference. Dr. Bissell operated at once, and to him is due the credit for the recovery of this patient in my service. The abdomen was opened under every antiseptic precaution and the fetid pus flowed freely from the opening in the peritoneum. The appendix could not be found, and the cecum was black and covered with fibrinous exudation. Pus was free in the cavity and no adhesions had taken place to wall off the infected area from the general peritoneal cavity. The peritoneum was inflamed, and pus surrounded the coils of intestine. The immediate infected area was subject to irrigation in the manner already described, and then the patient was rolled upon his right side, and free irrigation was employed in the general peritoneal cavity, and the wound drained. Upon the second day following the operation the appendix came away while irrigating the wound, and the patient made an uneventful recovery. The wound healed and no fistula or hernia resulted from the operation.

Remarks.—The bacteriological examination showed that *Streptococcus* was the germ of infection in this case and not the *Bacillus coli communis*. From a clinical point of view this has much of interest attached to it. It illustrates the necessity of immediate and early operation in those cases where there have been repeated attacks. This seems to be true even in the face of practically a normal temperature, normal pulse respirations, and absence of vomiting. To be sure certain primary cases rapidly change for the better after the third day, but in the cases where the attacks are multiple, the operation is more likely to be successful if performed at once, than if left until conditions are more serious. This case also shows how unreliable are pulse and temperature as indicating the severity and danger of the disease.

Case V.—Acute perforative appendicitis with gangrene and rupture of the appendix. General peritonitis. Operation. Recovery. I. M., æt. ten years, while in perfect health was suddenly attacked with violent pains in the abdomen accompanied by vomiting, and serious constitutional disturbances. Upon the third day of his illness, the writer was asked to see the patient by Dr. Dalrymple, of New Rochelle. Upon examination, he found the patient suffering from serious constitutional disturbances. The pulse was 120, and the temperature nearly 104° F. The abdomen was greatly distended, rigid and tym-

panitic. The boy was in great pain and the writer advised an immediate operation, to which the mother consented. The peritoneal cavity was opened and a large quantity of fetid pus flowed out through the opening. The intestine was covered with pus and lymph, and the peritoneum intensely inflamed. There were no firm adhesions of the intestines to one another, and no circumscribed abscess wall. Pus was free in the iliac region, and the appendix was found gangrenous, with a perforation. The appendix was now ligated in the usual manner. The iliac cavity was walled off with pads of gauze, and the pus and inflammatory exudates washed out with a solution of bichloride of mercury, and then with peroxide of hydrogen and hot saline solution. After the part of the peritoneal cavity in which the appendix was situated was thoroughly disinfected, the general cavity was irrigated by using the same disinfectants, with the boy turned upon his right side. The wound was now drained and partially closed.

Remarks.—This case, with the preceding four, illustrates the value of an operation with gangrenous appendix and rupture, and suppurative peritonitis. Emphasis is placed upon the treatment of local disinfection of the iliac region and then the general disinfection of the peritoneal cavity. With the exception of great difficulty in getting the bowels to move after the operation, he made an uneventful convalescence. The cicatrix is firm, and there is no weakness in the abdominal wall at this point in consequence of leaving the wound open for drainage. This makes the fifth consecutive case of perforative appendix with suppurative peritonitis occurring within a few weeks, and offers encouragement to operate in those cases where the conditions are such as to lead one to expect a quick and fatal termination.

Case VI.—Acute perforative and gangrenous appendicitis with general peritonitis. Enterolith found in peritoneal cavity. Operation. Recovery. J. T., æt. fourteen years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. The patient was treated outside for several days, and was brought to the hospital *in extremis*. The temperature was elevated, the pulse was accelerated and the respirations were rapid. As the condition was serious, an immediate operation was deemed necessary. The abdomen was opened, and a peritonitis was found, and the appendix was perforated by a fecal calculus about the size of a pea. The concretion was found in the search for the appendix, and was lying free in the cavity of the peritoneum, which was the seat of an acute peritonitis. The appendix was removed, the peritoneal cavity was irrigated after first disinfecting locally the region of the ileocecal valve, and then the general cavity drained and the wound partially closed. The patient made an uneventful recovery.

Case VII.—Acute perforative and gangrenous appendicitis. Pus in peritoneal cavity. General peritonitis. Operation. Recovery. J. B., æt.

twelve years, was admitted to St. Vincent's Hospital suffering from severe abdominal pain. The boy was at school the day preceding his admission to the hospital, and twenty-four hours previous to his admission to the hospital he was apparently well. The attack began with violent pain, vomiting and rise of temperature. He attended school the morning previous to his entrance to the children's ward. The attack was thus very sudden in its onset, very severe in its character, and denoted a most virulent and rapid infection, calling for an immediate operation. Upon examination his pulse was found to be 140 to 150, respirations 40 per minute, and his temperature 104° F. He had been vomiting for the past twelve hours, suffered great pain over the appendix, had a rigid abdominal wall, and severe colicky pains in the right iliac region, with great tenderness over the appendix. A blood count was made, and there was a leucocytosis of 20,000. An operation was performed at once, and the appendix was found perforated and gangrenous, and pus was free in the peritoneal cavity. The peritoneal cavity was drained, and the patient made an entirely satisfactory recovery.

Case VIII.—Gangrene and perforation of the appendix with general peritonitis. Operation. Recovery. W. H. was admitted to St. Vincent's Hospital with a temperature of 103° F., pulse 128, and respirations 38. The patient complained of great pain in his right iliac region, which had come on suddenly with an attack of vomiting. Pain was very severe over the region of the appendix. In view of the alarming symptoms, the patient was placed at once under the influence of an anesthetic, and an operation was performed on the same day of his admittance to the Hospital. The appendix was found gangrenous and perforated, without any abscess cavity. Pus was found in the right iliac region, as well as in the peritoneal cavity. The appendix was ligated, and the stump touched with a strong solution of carbolic acid. The right iliac region as well as the peritoneal cavity were washed out with a solution of bichloride of mercury of 1 to 4,000, after that with a hot saline solution. A rubber drainage tube wrapped with sterile gauze, over which rubber protective was wrapped, was introduced into the right iliac fossa, down to the stump of the appendix. An incision was made upon the back where the cavity was drained in the same manner. Drains were also introduced near the median line in the general peritoneal cavity. The patient's temperature fell in forty-eight hours to 98.5° F., and ranged between that and 101° F. for several days. The temperature then rose again, and the abdomen was opened upon the left side, and a new pocket of pus was discovered. This was drained in the same manner as already described, and after several weeks all the openings were closed, and the patient made an uninterrupted recovery. The blood count in this case showed only 7,000 white blood cells at the time of the operation. The pa-

tient for many days was stimulated with whisky, sulphate of strychnia and nitroglycerin.

Case IX.—Perforative appendicitis with general peritonitis. Operation. Recovery. M. G., æt. eleven years, was admitted to St. Vincent's Hospital suffering from an attack of severe pain in the right side accompanied by nausea and vomiting. Upon examination there was found a rigid and distended abdomen, high temperature and rapid pulse with considerable shock. The blood count showed a leucocytosis of 17,000. The abdomen was opened and pus was found with a gangrenous appendix. The abscess was not walled off in every direction, and pus had escaped previous to the operation into the general peritoneal cavity. The abscess cavity was mopped out and made as sterile as possible and the general abdominal cavity thoroughly washed out with peroxide of hydrogen, then bichloride of mercury, and, finally, with hot saline solution. The appendix itself was found which was tied off and a tube wrapped round with sterile gauze and covered by rubber tissue was inserted down in the pelvis to the stump. Free drainage was also provided for the general peritoneal cavity by means of sterile gauze wrapped in rubber tissue to prevent adhesions of the intestine. The patient recovered with a small sinus leading down toward the stump; but after a few weeks from the time of the operation, the sinus closed and the boy was discharged cured. In this case there occurred a clinical fact worthy of mention. The blood count to which mention has already been made showed the day following the operation a rise to 40,000, which gradually fell to normal. It was a strange coincidence that with a blood count of 17,000 upon the day of the operation the leucocytosis should jump up the day following the operation to 40,000. This is in marked contrast to the case of general peritonitis from rupture of the appendix in which the blood count was only 7,000 with pus free in the general peritoneal cavity.

The tenth and eleventh cases of acute perforative gangrenous appendicitis with general peritonitis present nothing unusual in their histories. Suffice to say that these cases were operated upon in the same manner as has already been described and drained in the same way, and both recovered without hernia. This makes 11 consecutive cases of acute perforative and gangrenous appendicitis with general peritonitis with recovery; there is certainly nothing more to be learned in the management of these hitherto almost uniformly fatal cases. Surgery has accomplished by slow advances, and by repeated elimination, a method of cure for these cases, and can point with pride to its success in saving lives that formerly were lost by indecision to operate, and faulty technic.

The question of the reduction of the mortality in appendicitis confronts the family physician as well as the practical surgeon. On the family physician the writer would impress the clinical fact that appendicitis is essentially a surgical affection,

and is governed by all the laws that pertain to acute infective inflammations in other parts of the body. If the case is not pursuing a favorable course after thirty-six hours of recognized medical treatment, it should be relegated to the domain of surgery. If the case is doing well within the limit of time mentioned, delay is possible as far as immediate operative interference is concerned; but still the case should be referred to a surgeon with a view to an interval operation. It would be a sad calamity for a patient to succumb to a fatal recurrent attack for want of having had an opportunity offered him to prevent his or her death. If the opportunity has been offered and the patient declined the operation, the responsibility rests with him, or with her, and the family physician is relieved of that responsibility. On the practical surgeon the writer would impress the clinical fact that early operations are almost always successful, and late operations are attended by a certain mortality. The ideal plan is to operate after thirty-six hours if the symptoms are serious, with a view to the reduction of the present small mortality. Besides the duty which belongs to the family physician, and the duty which devolves upon the practical surgeon, there is still a common, reciprocal duty that belongs to both. The mortality in appendicitis can only be reduced by a hearty, cordial cooperation of both physician and surgeon, and when these relations are established, the death rate, small as it is, will be still further reduced, and both the physician and surgeon can, by united action, contribute to the comfort and salvation of the patient. It is in this way only that the death rate can be reduced, and until the family physician and the practical surgeon meet on a common ground, and consult in perfect harmony, the death rate will remain where it is. On the other hand, with the establishment of more cordial and intimate relations between these two representative members of the profession, the small death rate in this disease will be still further reduced and both the physician and the surgeon will equally contribute to the one grand object, the saving of human life, than which no other calling or duty is more grand or noble in the history of the race.

THE RELATION OF PROTEIDS TO EDEMA IN MARANTIC CHILDREN; WITH URINALYSES IN INFANTILE DIARRHEA.*

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In an article entitled "A Study of 555 Cases of Summer Diarrhea," by C. G. Kerley, read before the American Pediatric Society in 1901 and published in the *Archives of Pediatrics*, the statement is made that brandy and whisky should not

* Read before the meeting of the Alumni Society of the New York City Hospital, October 14, 1903.

be used as stimulants because of the frequent involvement of the kidney in diarrheas of that character, and the consequent danger of provoking that common complication by the use of alcohol. At the time the paper was read there seemed to be a difference of opinion as to whether the kidneys were involved; and to settle this point to his own satisfaction, as far as is possible clinically, the writer, while House Physician at the Nursery and Child's Hospital, examined the urine of a number of children with acute fermentative or infectious diarrheas.

Cases were chosen for examination that came under one of the four following heads—and then only when the urine could be collected during the height of the attack: (1) Cases with marked diarrhea, high temperature, great prostration and blood or mucus in the stools. (2) Cases in whose stools the *Bacillus dysenteriae Shiga* was found. (3) Cases whose blood serum agglutinated the Shiga bacillus—this test rests upon the authority of Dr. W. H. Park, of the New York Board of Health. (4) Cases marked by edema of some part of the body, with or without the presence of a marked acute diarrhea.

The idea in taking the acute cases was to avoid mistaking degenerative changes in the kidney, consequent upon the long wasting illness, for acute inflammatory processes due to the diarrhea itself. The second and third classes, viz., those in whose stools was found the Shiga bacillus or whose blood serum agglutinated those bacilli, were chosen because the specific infectious nature of the disease was considered proved and not purely dependent upon errors of diet. Although Dr. Joseph Winters, in the *Medical Record*, of March 7, 1903, considers the original bacterial influence as nil and errors of diet the entire cause, both predisposing and exciting, in all cases of infantile diarrhea. Special emphasis is laid upon the cases marked by edema, most of them occurring during an attack of diarrhea, because of the comparative rarity of this condition, the different theories of its etiology, and the absence of any regular and previously efficacious treatment.

In the first class of cases the results of but twelve urine examinations are given. The number is limited because the cases were confined strictly to the very severe ones—those with intestinal toxemia—and because of the difficulty of collecting the specimen, particularly in the female babies, before the usual treatment improved the condition. When the urine could not be collected until the condition had improved the case was not included in the list.

Of those 12 cases but one, Willie F., eight months old, showed any albumin in the urine and then only a slight trace. The child had a diarrhea for two days and at the time the specimen was obtained had a temperature of 104.4° F. Indican was found in the urine of but two.

Hyaline casts were found in two other specimens, both children being under four months old, at which age, little, if any, significance, can be attached to their presence.

In the second and third classes, in which the specific bacterial origin of the disease is considered settled, were four cases. The blood serum of two of these agglutinated the Shiga bacillus, taken from a pure culture, and in the other two the bacillus was found in the stools. The latter fact rests upon the authority of Dr. Steele of New Haven. In none of these cases of proved specific infection was any trace of albumin, or other evidence of inflammatory kidney process found.

The cases with edema are taken up in detail because this condition is rarely met with, and when it is, is usually ascribed to cardiac or renal disease, although apparently independent of either. The writer is able to find it mentioned in but one of the standard text books of pediatrics.

As dropsy in the legs frequently accompanies heart lesions, and in other parts of the body accompanies heart or kidney lesions, the presence of edema in infants naturally leads to the belief that one of these organs involved. Clinical evidence, however, would appear to show that this is not necessarily the case.

Edema in marantic infants during an attack of diarrhea, differs from the dropsy often seen toward the end of a long, wasting illness, such as pulmonary tuberculosis or carcinoma, in that it is not necessarily an ante-mortem sign. Of the six cases mentioned in this paper, five recovered. The individual cases were as follows:

Case I.—Six months old, weight 6½ pounds, vomiting, refusal of food, fever, frequent defecations of curds and mucus. Temperature 104° F. Barley water was substituted for milk and the usual medical treatment instituted. In next twenty-four hours the edema began in soles of feet, a slight reddening of the skin being the first thing noticed. In twenty-four hours the eyelids were puffy, in the next twenty-four the whole face became so swollen that the eyes could not be opened and the legs were also much swollen, with deep pitting on pressure over the tibia. While impossible to collect the total urine for measurement it appeared to be slightly less than usual. The results of the examination of the specimens collected were negative, the sp. gr. being 1.014, with no casts, no albumin, no indican. The hemoglobin was 70 per cent., the leucocytes 8,500 and the clotting of the blood apparently normal.

During the increase of the edema the regular treatment, dietetic and medical, for the preexisting diarrhea, was carried out. At the same time systematic treatment for the edema was instituted, as recommended in the only text book containing any information on the subject. Heat over the kidneys, diuretics, as spiritus etheris nitrosi, citrate of potash and fl. extract of digitalis, were all used, but with no decrease in the edema, nor improvement in the general condition. Finally all medication was stopped. The food, which during the worst part of the diarrhea, had been plain barley water and which now contained by the addition of 4 per cent. milk, .75 per

cent. of fats and proteids, was abruptly changed to a mixture containing $2\frac{1}{2}$ per cent. of proteids and fats and in sixteen hours the edema had entirely disappeared. The general condition improved from that time, and continued to do so, although the food had to be carefully regulated.

Case II.—Age ten months, weight 8 pounds. This was a typical marasmus case, as will be seen from the age and weight. Brought in for bad, frequent bowel movements. On first examination soles of feet were slightly swollen. Twelve hours after admission eyes were puffed up and the child gained seven ounces in two and a half days. The regular, generally acknowledged treatment for the existing diarrhea would have been withdrawal of all milk, to avoid forming new culture grounds for the bacteria. The presence of the general edema was so ominous, however, and the child's general condition so bad, that, from the lesson of the previous case, the amount of proteids in the food was rapidly increased, with entire subsidence of the dropsy and a loss of 10 ounces in weight. The general condition rapidly improved under the increased proteids, although the stools continued somewhat frequent and curdy. The urine in this case during the height of the edema was voided but once in sixteen hours, and showed no indican, but did have a slight trace of albumin and a few hyaline casts. The hemoglobin was about 45 per cent. and coagulation apparently not retarded, leucocytes about 10,000, the proportions of the various kinds being about as usual.

Case III.—Ernest H., aged ten months, weight 9 pounds 8 ounces. This case had been in the hospital for several weeks with malnutrition, when the edema began. He was being fed on a mixture of 4 per cent. milk and barley water, in which the fats and proteids approximated $1\frac{1}{2}$ per cent., the sugars six. On Sept. 27, his eyelids and feet began to swell, he gained rapidly in weight and many casein curds appeared in the movements, although the bowels continued regular. The proteids were lowered to one per cent., then raised to two per cent., and the milk peptonized. The edema disappeared and 11 ounces were lost in twenty-four hours. The urine and blood examinations were absolutely negative, the hemoglobin being 65 per cent. At the time of writing this child weighs sixteen pounds and is perfectly normal and healthy.

Case IV.—Stella S., aged three months, weight $7\frac{1}{2}$ pounds. Was being fed on a mixture of 4 per cent. milk and Imp. Granum, $1\frac{1}{2}$ oz. of milk to 3 oz. of Imp. Granum, a mixture in which the fats and proteids approximated $1\frac{1}{2}$ per cent., the carbohydrates being high. On Oct. 17, almost a month after the appearance of any other case of edema, the temperature fell to 96° F., feet and then eyelids began to swell and six ounces were gained inside of twenty-four hours. Food was changed to a milk and whey mixture and the proteids increased to 2 per cent., then to $2\frac{1}{2}$ per cent. and edema disappeared entirely in thirty-one hours. The bowels were disturbed in

consequence of the increased strength of the food, but as the general condition improved and temperature rose to normal the formula was retained for one week. The urine in this case showed no albumin, no indican, a few hyaline casts, and there was no suppression. This child died seventeen days later of laryngeal diphtheria, twelve hours after intubation.

Case V.—Annie H., aged ten months, weight eight pounds eight ounces. Edema began on October 25 (during an attack of diarrhea) and progressed as in the other cases. The child voided urine but once in the first thirty-six hours after the edema began, and averaged in the next five days during which the edema lasted only four ounces in twenty-four hours. To contrast results the previously accepted treatment was adopted. Diuretics were given as in Case I, as well as the usual dietetic treatment for diarrhea, but edema persisted, although the condition of the bowels improved. On October 29, after dropsy had lasted four days, this treatment was abandoned and a milk and whey mixture given, and the fats and proteids rapidly increased to about 2 per cent., in addition to the lactalbumen in the whey. In thirty-one hours the edema had entirely disappeared and the general condition improved rapidly. The urine examination was negative in this case, as was the blood, the hemoglobin being 60 per cent.

Case VI.—Aged $3\frac{1}{2}$ months, weight 6 pounds 2 ounces. A case of marasmus. Was put on a milk-whey mixture after coming in the hospital. On November 6, 1902, bowels became bad, and child was fed on plain whey. On November 17 edema began in the feet and progressed in the usual way but very rapidly, until the entire body, with the exception of the serous cavities, was much swollen. Urination apparently about as usual in frequency and amount. Weight increased eight ounces in three days. The bowels remaining bad, the child was still fed on whey, but two days after the onset of the edema, because of its rapid spread and in spite of the condition of the bowels, milk was added and rapidly increased with every feeding, until the proteids reached 2 per cent. plus the proteids of the whey. The edema decreased almost immediately and had entirely disappeared in two days. The urine showed no casts, and no albumin. The leucocytes were about 12,000 and the hemoglobin less than 40 per cent.

Case VII.—An Italian child, $4\frac{1}{2}$ months old. Weight $4\frac{1}{2}$ pounds. In this case diarrhea had existed five days before admission. The child had been fed on Russian tea and brandy and was in very bad shape. Within twelve hours after admission began to show edema. A combination of milk and whey, with the milk rapidly increased, was given, but not retained. After plain whey for six hours, during which the edema increased, small, repeated doses of milk and whey were finally retained. The edema entirely disappeared in $2\frac{1}{2}$ days under increased strength of the formula. The urine was entirely negative, not even

hyaline casts being found. The polymorphonuclears outnumbered the lymphocytes. The hemoglobin was 50 per cent. The edema did not return and the child went out eighteen days later with a gain of eleven ounces and conditions much improved.

The heart sounds in all these cases were perfectly normal. Several theories have been advanced as to the cause of edema of this description. Dr. L. Emmett Holt thinks it due to the hydremia of the blood in the cases he has observed. Remlingen, in the *Revue de Médecine* of October, 1901, speaking of a few cases of edema without albuminuria observed in adults after severe or protracted attacks of diarrhea, ascribes the same cause. Dr. Rowland G. Freeman, from the cases observed at the Nursery and Child's Hospital, and at the New York Foundling Asylum, thinks it is of infectious origin. De Wolf, of Providence (*Archives of Pediatrics*, Dec., 1902) in describing an apparent epidemic of edema accompanying diarrhea in infants, considers it of renal origin dependent upon infection, presumably through the milk.

Of the cases here noted but two seemed to have any etiological relation. Cases II and III showed edema on the same day and were in adjoining beds in the same wards. All the others showed the condition at widely different periods and locations. The cases showing edema on admission to the hospital, entered after it had appeared in children already there, so could not have brought in the infection from the outside. As to the possible nephritic origin without albuminuria or other clinical evidence, the necropsy records for the past several years of Dr. Vanderpool Adriance, pathologist of the Nursery and Child's Hospital, show that none of the cases with edema had any kidney lesions. L. Emmett Holt, in 70 autopsies on gastro-intestinal cases found but one affected kidney.

Dr. C. A. Herter—whom the writer is unable to quote verbatim, but from memory only—thinks the edema due to involvement of the sympathetic nervous system from severe constitutional depression. This view is certainly supported in the cases here presented by the improvement in the edema and also in the general condition, under an increase in the proteids in the diet. The usual dietetic treatment for diarrhea is of course the withdrawal of the proteid element in the food, but in cases marked by edema in mirant children the constitutional resistance appears to be so slight that the proteids need to be retained and even increased, notwithstanding the locally irritant effect on the intestines. It appears to be a choice between aiding the general system and making the diarrhea worse—or rather not treating it after the generally accepted method—and improving the diarrhea with probably fatal consequences.

The recovery of the seven cases with the supposedly ante-mortem sign seems to warrant this statement.

To sum up: (1) Acute diarrheas—not pro-

tracted cases—are not accompanied by kidney involvement; (2) alcohol is not, therefore, injurious in this condition, if necessary for use as a stimulant; (3) edema during a diarrhea in mirant infants is a bad sign, is not necessarily ante-mortem, is not due to the heart or kidneys and (4) the bad general condition is best treated by disregarding the diarrhea and increasing the strength of the proteids.

The writer is indebted to Dr. A. M. Thomas and Dr. R. G. Freeman for the privilege of making these investigations and of publishing the results.

DIAGNOSIS OF GALL-BLADDER DISEASES.

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THE diagnosis of cholecystitis, cholelithiasis, and cholangitis depends first, on the location of the inflammation or stone; second, on the degree and character of the inflammation, and third, to some extent on the size of the stone. The symptoms of these conditions vary from the well-known clinical picture of the so-called acute catarrhal jaundice to the obscure and indefinite symptoms of a chronic inflammation of the gall-bladder, which at times produce no symptoms at all.

To assert that the general diagnosis of cholecystitis and cholelithiasis is easy, and that the position of the calculus may in all instances be definitely determined is an acknowledgement of an unfamiliarity with the manifold intra-abdominal pathological lesions, which often present common and confusing symptoms.

The diagnosis of acute catarrhal jaundice offers probably as little difficulty as any of these conditions. A history of errors in diet, of a previously existing gastro-intestinal catarrh, age, young adult life, the appearance of jaundice and clay-colored stools, unaccompanied by pain or general emaciation, with little or no fever, urine containing bile pigment, and a slow pulse, form together a characteristic clinical picture, especially when there are no symptoms pointing to acute yellow atrophy, carcinoma or cirrhosis of the liver. When this condition develops in a patient, after the thirtieth year, we have a more difficult problem, as the above symptoms may mask a cholelithiasis, and pain similar to gall-stone colic can be caused by the expulsion of plugs of inflammatory mucus, closely simulating the passage of a gall-stone. A careful examination of the washed stools should be made, as some information may be gained in this way, although Naunyn has shown that gall-stones may be decomposed in the intestines. Chronic catarrhal cholangitis occurs in obstruction of the common duct, usually by gall-stones, less commonly by malignant diseases, strictures or by pressure on the outside. Osler recognizes two groups: (a) *Complete obstruction* of the common duct presenting chronic and intense jaundice without fever, a history of

previous attacks of colic, no, or very slight, enlargement of the gall-bladder; (b) incomplete obstruction of common duct when due to gall-stones presents recurrent paroxysms of pain, accompanied by chills, fever and sweats—the "Charcot hepatic fever." Jaundice is a variable symptom sometimes marked, other times slight. There is no enlargement of liver or gall-bladder and the health is not much affected. The condition is probably due to a repeated infection, not severe enough to cause suppuration. The blood must be examined in order to eliminate malarial fever, and if a tumor is present must have some other condition than obstruction of the common duct to account for it; either a growth, or an obstruction of the cystic duct.

Catarrhal cholangitis may extend into the minutest gall-ducts of the liver, and become persistent. The extrahepatic ducts then show little or no alterations. The important symptoms of this condition being a continuous jaundice and the course of the affection is that of hypertrophic cirrhosis.

Suppurative cholangitis usually follows immediately upon an attack of catarrhal inflammation or gives a history of such an attack. It is usually associated with gall-stones either in the ducts or gall-bladder, but not necessarily so. The symptoms are chills and fever of the remittent type, with grave constitutional symptoms indicating a septic pyemia, locally enlargement of the liver (in a badly infected case), colicky pains and jaundice, but not so marked as in the catarrhal form. The symptoms of this condition vary widely, depending on the character and amount of the infection, at times closely simulating abscess of the liver, and have been mistaken for malarial fever on account of the type of the temperature and sweats. The differential points between these two conditions are as follows: In abscess of the liver we find that the patient prefers to lay with head and shoulder high and slightly on the left side, there is progressive and rapid emaciation and anemia, jaundice very rare. Grasping the liver in any location will cause pain, pressure under the costal margin with deep inspiration will cause pain. Local edema is sometimes present and is a valuable symptom. The right lobe is most often affected, enlargement of the liver is first in the upward and later in the downward direction. Temperature is often high, at first 103° to 105° F., but may begin insidiously, and become intermittent and irregular, with periods of normal temperature. Pains of a dull aching character in region of the liver and right shoulder blade. There is generally a history of some primary infection; constipation is quite marked, with occasional spells of diarrhea.

In suppurative cholangitis there is a history of biliary colic and transient jaundice; no enlargement of the liver, except in the severe grades of infection. Pain located at tip of the ninth rib, which is extremely marked, and occasionally a pyriform tumor, caused by a distended gall-bladder when the cystic duct is obstructed.

Cholecystitis may be acute, subacute or chronic, with or without associated gall-stones. The acute cholecystitis is due to infection by a variety of micro-organisms, most commonly *Bacillus coli communis*, and typhosus, pneumococcus, staphylococcus, and streptococcus. That cholecystitis can occur without the presence of gall-stones is an indisputable fact, but that this is a rare occurrence we must admit, and therefore, when symptoms are present which point to a cholecystitis we generally expect to find associated with it the presence of gall-stones, and are usually not disappointed. That a differential diagnosis between the calculous and the non-calculous form of cholecystitis is at times possible, I believe, by a careful study of the symptoms, but as the treatment is usually operative in either instance, this is of no great importance.

The symptoms are as follows: Acute paroxysmal pain, usually in the right hypochondrium, less commonly in the epigastrium or ileæ (appendiceal) region, is the earliest evidence of the disease, quickly followed by nausea, vomiting, abdominal distention, rigidity and tenderness. Tenderness is at first diffuse, later localized, but unfortunately not always in the region of the gall-bladder. Usually there is obstinate constipation and at times even complete intestinal obstruction, neither flatus nor feces passing. It is only recently that cholecystitis without gall-stones has been recognized as a pathological entity. Maurice Richardson declares that it is more frequent in his experience than many other supposedly frequent intra-abdominal lesions. The diseases most frequently mistaken for acute cholecystitis are intestinal obstruction, appendicitis, acute pancreatitis, and perforating gastric ulcer. *Acute intestinal obstruction* has many symptoms in common with gall-bladder disease; viz., pain, vomiting, constipation, tympany and collapse, but the temperature is the important differential symptom. An increase in the temperature of more than 1° to 2° F. excludes intestinal obstruction, as a rule, prior to the developing of peritonitis, and if a tumor develops in the gall-bladder region, the diagnosis becomes less difficult, especially if the tumor has the characteristics of a gall-bladder enlargement, to be described later.

Appendicitis.—Most mistakes are made in differentiating from this affection and are at times unavoidable, as occasionally the clinical picture is precisely the same. A careful study of the history is perhaps the best guide, and again, a tumor in either the appendiceal or gall-bladder regions makes the diagnosis comparatively easy; but when we remember that in appendicitis the pain is sometimes referred to the region of the gall-bladder, and in cholecystitis to the region of the appendix, and all the other symptoms, mode of onset, etc., are at times identical, an exploratory incision becomes our only means of arriving at a diagnosis.

Acute Pancreatitis.—The histories of both diseases are very similar, the digestive disorders common to both. Jaundice may be present or

absent in either. Both may begin with sudden and violent pain, usually more marked in acute pancreatitis, which is located in the epigastrium, to the left side, while cholecystitis is a right-sided affection. Tenderness is very deep-seated in pancreatitis, and quite superficial in cholecystitis. If tumor is present in either instance it is deep-seated and diffuse in pancreatitis and more superficial in cholecystitis.

Perforating ulcer of the stomach and duodenum have been mistaken for cholecystitis, the location of the pain and rigidity being our only guides. Cholelithiasis occurs mainly in women, the percentage ranging from 65 to 75 of all cases; especially after having given birth to children. The patient is usually between forty and sixty years of age and rarely under twenty-five years. Gormandizing, sedentary occupation, constipation and tight lacing are all predisposing causes that should be studied carefully. C. D. Mosher (*Johns Hopkins Hospital Reports*, 1901) gives the following conclusions for 1,655 autopsies (6.49 per cent. American to 12 per cent. German women): in other words, 1 in every 10 American women, and 1 in every 5 German women have gall stones. As to color, whites average 7.85 per cent. to 5.57 per cent. colored. An idea as regards the frequency of this disease can be gathered from Schroeder, who finds that 12.5 per cent. of all autopsies show gall-stones, and Kehr, who records 360 operations on the gall-bladder and ducts, of which 307 were for gall-stones.

Premonitory symptoms frequently occur, and are valuable aids to diagnosis. They are as follows: Constipation, flatulency, loss of appetite, vertigo, tinnitus aurium, migraine, urticaria, icteroid tinge, and scanty, dark urine. A combination of some or all of these symptoms should put us on guard for a possible oncoming attack of the so-called gall-stone colic.

Pain is sudden in onset and much diagnostic significance is attached to the time of its occurrence, which is usually at night, during the relaxation of sleep, but it may occur at any time; and any violent exercise, vomiting, coughing, etc., may precipitate an attack. In the beginning, the pain is usually located in the epigastric region. Later the right hypochondrium is affected and is often referred to the back, under the angle of the scapula; then the right shoulder and arm (*never down the arm*); rarely to the sacrum or hip. Pressure over gall-bladder will sometimes relieve the patient temporarily. The pain is intermittent, and may last from a few hours to a few days with complete or partial intermission. The pain is described as agonizing and much more severe than the pains of labor. The fact of the great suffering is depicted on the face, with marked depression, rapid respiration, cold sweats, frequently with a temperature of 103° to 104° F. Pulse rapid and weak, and at times weak, but slow.

Vomiting is usually present and is probably reflex. It seems to give temporary relief and not

infrequently the colic disappears during an emesis.

Shock, of a varying intensity, occurs from a feeling of weakness to a condition of collapse, and death has occurred during the height of a paroxysm.

Pulse and Temperature.—There is quite some disagreement in reference to the pulse rate and the statement has been frequently made that a slow pulse is always present, but there are too many exceptions to this to allow it to be considered as a safe rule. If there is an infection the pulse is accelerated, and a persistent, rapid pulse is, as in all other abdominal diseases, of grave significance.

Temperature during the shock is often sub-normal, but with a cold and clammy skin. The rectal temperature is sometimes found to be from 102° to 104° F., and in some patients chills and sweats, closely resembling malaria is present. Jaundice is a most unreliable symptom. From 1890 to 1902 Kehr performed 720 operations for gall-stones and jaundice was absent in 80 per cent. of the cases in which stones were located in the gall-bladder and cystic duct; and absent in 30 per cent. of the cases with obstruction of the common duct. When jaundice does appear, it usually comes on at the end of the first day or during the second day, after the acute paroxysm, and appears, first, according to Douglas, on the right side of the abdomen. Bile can often be found in the urine. The size and location of the stone, and the completeness of the obstruction determines the degree of jaundice, obstruction of the common duct being, therefore, more productive of jaundice than obstruction of the cystic duct.

Stools.—In obstruction of the cystic duct no decolorization of stools occur and in fact the obstruction must be absolute. It is a common occurrence to have marked jaundice with normal stools.

The urine shows bile pigment as a rule, but only when there is jaundice. The amount of urine is usually increased at first and contains some albumin and if the attack persists the urine becomes more scanty, and casts and albumin are usually found, and may be a forerunner of convulsion and death.

The local physical signs are of great importance and must be carefully studied. The tumor of the gall-bladder when present is a great help in making a diagnosis but, unfortunately, this does not always exist. In acute obstruction of the cystic duct a tumor is usually found and is typical, being round, smooth, and elastic, and when palpated and pushed away from the abdominal wall will return to the examining finger as if swung on a pendulum. In chronic cholecystitis with adhesion an irregular mass can sometimes be made out. The gall-bladder tumor responds to respiration. Crepitus can sometimes be felt. If Riedel's lobe can be felt with its sharp edge lying across the tumor it is pathognomonic of gall-bladder enlargement.

Roentgen rays have proven of but little value in the diagnosis of gall-stones.

In attempting to make a differential diagnosis in gall-stones we are at times compelled to eliminate almost every other intra-abdominal disease and in a short paper of this kind only the conditions which frequently and closely simulate it will be considered, and in order to avoid reiteration no mention will be made of acute intestinal obstruction, appendicitis, pancreatitis and perforating ulcers as they have already been described under the differential diagnosis from acute cholecystitis and will conclude with a few words descriptive of some other diseases that have been mistaken for cholelithiasis.

Gastralgia has been mistaken for gall-stones and diagnosis can be built upon the following points, found mainly in neurotic and hysterical patients: Pain comes when stomach is empty and is generally relieved by warm drinks or food. Pain is usually in the left side of hypochondrium and referred to left thorax. Pulse usually feeble and irregular, only slight tenderness and no tumor.

Non-perforating Gastric Ulcer.—Pain after taking food, often marked anemia, hematemesis frequent, and stools show some decomposed blood. Tenderness over seat of ulcer, also two inches to left of twelfth dorsal vertebrae, with rigidity of left rectus muscle.

Intestinal Colic.—Patients with this affection generally have diarrhea and some general muscular cramps; pain is referred to umbilical region with history of errors in diet or exposure to cold or exhaustion. Free bowel evacuation will usually cure and thus clear up the diagnosis. Malarial fever sometimes closely resembles calculus in the common duct. Quinine and blood examination will usually straighten out this tangle.

Carcinoma of Gall-Bladder.—Generally the patient is over forty years of age. Early cachexia, pain more constant and not so severe, jaundice comes on slowly and persists, enlargement of the liver, edema and ascites gradually develop and blood shows the usual changes found in carcinoma.

Movable Kidney.—Most frequent in thin and nervous women, pain in the lumbar region and referred downward, tumor is easily felt and grasped between the hands, not usually influenced by respiration. Shape is characteristic, and when mass is pushed back to its proper place in the loin, will stay there quite a time.

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Dr. Pearson Reappointed.—Dr. Leonard Pearson, of Philadelphia, has been reappointed State Veterinarian by Governor Pennypacker. Dr. Pearson held this position under the two preceding administrations.

THE DIAGNOSTIC VALUE OF THE ROENTGEN RAYS.*

BY CHARLES LESTER LEONARD, A.M., M.D.,
OF PHILADELPHIA.

IN dealing with the difficult problems of medical and surgical diagnosis, the practitioner is often confronted by a symptom complex that defies solution. As a result new methods of physical diagnosis have been developed and the resources of chemistry and physical science have been utilized. Physical diagnosis is thus largely based upon the discoveries of pure science adapted to its problems.

The rapidity with which the Roentgen rays have been developed into an accurate method of diagnosis shows a quick appreciation of their value to medical science. The expert diagnostician readily realizes the chances of error, and gladly welcomes new methods that will confirm his results. Thus, it has been, that the greatest encouragement in the development of methods of precision in applying these rays in diagnosis, has come from those most scientific and expert in medical and surgical diagnosis. They too, are the most eager to employ it, since it insures greater accuracy and confirms the diagnosis formed by other methods.

The late Dr. William Pepper appreciated the value of the Roentgen method in the diagnosis of thoracic aneurisms. In discussing the first series of these skiagraphs made for him in 1896, he said "that their value to him could not be expressed, since they formed a visible confirmation of the mental pictures he had been making for more than thirty years."

The particular element in this method that gives it precision and makes the data obtained more valuable is the mechanical element. The value of any physical method of diagnosis is increased whenever this mechanical element predominates over the personal element and eliminates to a greater degree the error always liable to be introduced by the personal equation.

Wherever the Roentgen rays have secured, mechanically, data upon which a diagnosis can be based, they have increased the accuracy. Their use does not wholly eliminate the personal equation or the skill of the observer. Sufficient of these elements enter into the final results to frequently render them far from accurate. The skill and experience of the diagnostician must always be taken into consideration. Equally good results should not be expected from the expert and the novice. The utmost care and attention to detail, and a full knowledge of the instruments he is using, are demanded of the expert to obtain accurate results. The necessary knowledge and technic are not readily acquired and earnest study is demanded of the student if he would learn to avoid errors. The apparatus and the method have often been blamed for the inexperience and errors of the observer. Clinical experience is of equal value in this as in other

* Read by invitation before the Medical Society of the State of New York, October 13, 1903.

methods of diagnosis. The expert diagnostician with other methods can acquire skill with this method and in its interpretation with greater ease than the inexperienced. His clinical knowledge of conditions and possibilities leads him to employ it more efficiently.

The mechanical element does not enter so largely into the fluoroscopic method of diagnosis. The data obtained are not registered mechanically on a photographic plate, but are only caught upon the retina. The result is that these data are often what the observer thinks he sees and not what exists. Valuable data can undoubtedly be obtained by the study of the fluoroscopic picture, as well as expertness in its use and interpretation, but it can never approximate the accuracy of the skiagraphic method, since it lacks the mechanical element of registering the observation.

A review of the entire field in which the Roentgen method has demonstrated its diagnostic value, or even a brief discussion of its advantages in its varied applications, is impossible in the limits of this paper. I shall, therefore, confine myself to a discussion of its value and advantages in calculus nephritis and ureteritis. The conclusions deduced are based upon the study of three hundred cases that have been referred for examination and diagnosis. The advantages demonstrated are a greater accuracy than other methods of diagnosis. An equal accuracy in the positive and negative diagnoses. A freedom from all the dangers and inconveniences common to exploratory operations, vesical examinations and ureteral catheterizations. The possibility of an early accurate diagnosis as soon as the suspicion suggests the possible presence of a calculus. A greater comprehensiveness definitely excluding or locating all calculi; giving their size, location and number, whether one or both kidneys and ureters are involved. This greater detail in diagnosis localizes and limits the operative intervention. It renders incision into the kidney unnecessary, except for macroscopic lesions; and has given rise to a conservative expectant line of treatment, that is rational, because it guards the integrity of the kidney.

An analysis of the three hundred cases that have been examined shows that calculi have been found in 86 cases, or over 28 per cent. That in 46 of these cases, or over 50 per cent., the calculi were in the ureter. That in nineteen of these cases of ureteral calculus the patients passed the calculi after expectant treatment had been suggested as the result of the Roentgen examination. The positive diagnosis has been confirmed by operation in all cases operated upon except five. In two of these cases the operation was delayed more than a month after the diagnosis had been made. As these were both small calculi it is very possible they had passed. The author has frequently advised immediate operation, or the repetition of the examination before operation if it has been delayed, and the search of the bladder just prior to operation with a Bigelow's evacua-

tor, in all cases of small calculi. In two of my cases the stone has passed into the bladder between Roentgen examinations, and has been subsequently detected after its passage through the urethra. In a third case the interval was not so long, but the vesical examination was omitted, though the patient had had an attack of colic between the examination and the operation. In the two cases where the operators failed to find renal calculi the patients weighed over two hundred pounds and were corpulent. The diagnosis rendered in each case was probable stone or incrustations of crystals with a mass of debris in the pelvis of the kidney. This diagnosis was necessary because the plates did not have sufficient definition to warrant an absolute diagnosis of stone. In one case it was impossible to repeat the examination and in the other the danger of burn made it seem unwise. In one nothing abnormal was found to account for the symptoms, but the patient recovered and is still in the best of health. In the other a mass of pus and crystalline debris was found. In both cases operation was absolutely necessary.

The ease with which calculi can be overlooked during an operation is illustrated by the following case: Mrs. M., about forty-five years of age, quite stout, had suffered for the previous five years with a constant dull ache in the right hypochondriac region with frequent exacerbations of pain. Urine was cloudy, showed pus, uric acid crystals and red blood cells. A Roentgen examination showed a fairly large calculus, the shadow was not very opaque. She entered a hospital two weeks later where they failed to find the calculus by the Roentgen examination, and also in the subsequent operation. She came under the care of Dr. G. G. Davis eight months later with a persistent urinary fistula. He operated and removed a phosphatic calculus thus confirming the diagnosis.

The negative diagnosis has been found as accurate as the positive and even more so. This diagnosis has been found correct in 45 cases that have come to operation after the negative diagnosis had been made. In one case, previously reported, a large calculus was found, the error being due to faulty technic in placing the plate and in the subsequent reading. In two other cases small calculi have been passed after the negative diagnosis had been rendered. The negative diagnosis has been confirmed in many other cases by their subsequent developments. In two case phleboliths have been found that suggested ureteral calculi. One was known to be present in the wall of the vagina, and the multiple phleboliths eight in number in the other case were found on operation in a varicocele of the veins of the broad ligaments. This patient had had for a long time obscure symptoms. The ligation of the varicose veins resulted in her cure.

The total combined error in both positive and negative diagnoses is less than three per cent. This method has never been considered infallible, but the amount of accuracy obtained is greater

than that of any other method. Equal accuracy is claimed for the negative and positive diagnosis. This claim was made by the author for this method in 1898 and his results since that time justify the claim. In every case all the knowledge that can be obtained by all methods of diagnosis is none too much, and every case should be carefully studied by all means at command including the Roentgen method.

The further value of this method, in directing and facilitating operation, and in rendering operation unnecessary and expectant treatment safe, will be illustrated by the study of certain cases and groups of cases, in which its effects upon operative procedure have been shown.

The group of 19 cases in which the expectant line of treatment was advised and resulted in the passage of the calculi without operation, shows the advantages of this method as a basis for treatment. It is more accurate, as shown by the increased ratio of ureteral to renal calculi. Fifty per cent. of the calculi detected entered the ureter before producing sufficient symptoms to call for the attendance of a physician. It is highly probable that many more pass through the entire urinary tract; while post-mortem findings show that many calculi remain undetected in the kidney without producing symptoms.

Undetected quiescent calculi, especially if small, are a constant menace to the integrity of the kidney. They may have already occluded the ureter, or they may at any time do so and produce a unilateral anuria and the destruction of the kidney, or even complete anuria that will threaten the life of the patient. The subsidence of symptoms after an attack of ureteral colic is no guarantee that the calculus has passed or that the urine is able to flow past it. Complete obstruction menaces the functional life of the kidney, and yet all symptoms may subside and the condition absolutely simulate recovery. They can only be differentiated by the observation of a bilateral urinary flow with the cystoscope. The condition is entirely altered by the recognition of a calculus and the determination of its absence after the subsidence of symptoms, or after all those that have been detected have been passed.

The recognition of the presence, position and exact size and number of these small calculi has rendered rational a course of treatment that would otherwise be extremely hazardous. It has also justified the establishment of an expectant conservative line of treatment in cases where calculi are found small enough to pass through the ureter. Such an expectant conservative treatment was suggested by the author more than two years ago, as the result of his experience with these calculi (*American Medicine*, November 30, 1901). That such treatment is justified is proved by the series of 19 cases in which such small calculi have been passed. The period between their detection by the Roentgen rays and their passage has varied from five days to eight months. Such a course of treatment cannot be advised until a careful study by other methods has been made,

and then the patient must remain under careful medical supervision. Immediate operation is sometimes necessary or may be called for by threatening symptoms. It has been necessary in three of my cases. In the first the diagnosis was made during an acute attack. There were no symptoms of progression on the part of the calculus, the pain was constant and severe, and the temperature pointed to infection. The calculus had been located an inch below the lower pole of the left kidney and was removed by direct ureterolithotomy. The wound healed rapidly and the patient made a complete recovery. The calculus was of the mulberry variety and very rough. This accounted for the intense pain, the difficulty in passing and the final impaction. In a second case impaction was complete at the point where the ureter crosses the common iliac artery. In this case all pathological elements were absent from the urine. The calculus was removed by a transperitoneal ureterolithotomy.

The third case was of special interest and illustrated as well, the precision of this method and the minuteness of the calculi that can be detected: A young married woman, of twenty-six years, had had a series of severe attacks of ureteral colic. She was examined at her home between attacks. Three very small calculi were found in the juxta-vesical portion of the ureter. The series of colic attacks made it seem probable that they would be expelled. The symptoms became grave and operation was necessary. It showed the three calculi in the exact position indicated, completely obstructing the ureter. They were removed and the pyonephrosis drained. The patient has completely recovered. In none of these cases was it necessary to explore the kidney.

Another group of cases illustrates the inaccuracy and incompleteness of operations without the aid of this method. They also show how this method increases the precision and completeness of operations and decreases the amount of operative trauma. The increased detail afforded by this method of diagnosis guards against the errors which were formerly made where there were multiple calculi in kidney and ureter, or in both urinary tracts at the same time. The position of all calculi is now determined before the operation is commenced. In three cases calculi have been found by the skiagraph in one kidney after operation upon the other, and in two of these cases calculi had been overlooked in the kidney operated upon. In another case an operation disclosed a fascetted calculus, the patient was too weak for the search to be continued; further operation was postponed and a Roentgen diagnosis made. This showed ten calculi remaining, located in both kidneys and ureters. They were all removed at later operations and the patient made a complete recovery.

In three other cases previously reported calculi were found at the operation, only because they had been previously located by this method. In three cases persistent urinary fistulae, following unsuccessful nephrolithotomy, were found to be

due to calculi that had not been found, blocking the ureter. Operative procedures have been facilitated in many other ways. Calculi have been removed through incisions that just admitted a finger that were made directly on the calculus, thus decreasing the trauma and operative risk. Others besides those mentioned previously have been removed by ureterolithotomy, either transperitoneal, rectoperitoneal, through the vaginal vault or through the bladder. In all these cases it was unnecessary to touch the kidney.

The accuracy of the negative diagnosis is attested by the 45 cases that have come to operation after this diagnosis had been rendered. In some of these cases the surgeon expected to find a calculus, but in only one case has a calculus been found.

This accuracy has led to the belief that where an accurate Roentgen diagnosis shows no calculus is present in the kidney, incision into the kidney is not justified, during an operation otherwise indicated, unless some other macroscopic pathological lesion is present.

In a case recently examined a negative diagnosis was rendered. The definition was so clear that a displaced left kidney could be seen, its lower pole on a level with the crest of the ileum. Such a displacement was sufficient to account for the symptoms and so much definition clearly excluded all calculi. The kidney was, however, opened during the nephrorrhaphy and a search for calculi was made, thus increasing the operative risk. The patient unfortunately died.

In favorable cases, that is, in patients weighing under 140 pounds, detail can often be obtained of the soft tissue structures that will suggest some condition other than calculus that is present. Thus displaced kidneys, pyo- and hydronephroses and even small collections of pus in the pelvis of the kidney have been observed and afterward confirmed by operation. As small an amount as an ounce of pus has been recognized by a shadow and subsequently removed by catheterization. The mottled appearance presented by the tuberculous or cystic kidney has sometimes been noted. These detailed diagnoses are exceptional and can as yet be made with no certainty and only in favorable cases.

The accuracy that has been obtained in calculus diagnosis is the result of an improved technic, further improvements may result in greater accuracy in other fields.

The author's technic in calculus diagnosis is based on the axiom that where shadows less dense than the least dense calculus are obtained no calculus should escape detection. Accurate results in both the positive and negative diagnosis can be guaranteed by a technic capable of making such negatives and clinical experience that can recognize when they have been obtained, and read them correctly.

The essentials of the technic developed and used by the author in this series of cases are: a self-regulating tube that will maintain itself at a low vacuum steadily during the entire exposure,

thus guaranteeing the non-penetration of the calculus. It must be possible to repeat the exposure at any later period under identical conditions. The coil or source of electrical energy must produce a large volume of Roentgen rays of low penetrating quality.

One of the greatest difficulties in Roentgen work is in recognizing when the tube is producing the requisite volume of Roentgen rays. The vacuum of the tube bears a nearly constant ratio to the penetrating quality of the rays, but varies with the kind of tube and the form of apparatus used to energize it. The vacuum employed by the author is equivalent, on his apparatus, to a parallel spark in air measuring $1\frac{1}{2}$ to two inches. Unfortunately this measurement is only relative and accurate only for similar apparatus. The Roentgen ray producing efficiency of various types of apparatus can only be measured by experience. A technic developed with any combination of apparatus, which can consistently produce negatives containing the necessary amount of definition, if a low vacuum tube is used, should be capable of making accurate negative and positive diagnoses. The low penetrating quality of light is essential to prevent the penetration of small uric acid and phosphatic calculi. The ability of the tube to maintain steadily the desired degree of vacuum is of the greatest importance as any variation results in the penetration of these less opaque calculi.

The value of the Roentgen method of diagnosis in this field has been demonstrated to be greater than any other known method. It has already rendered operation unnecessary in a number of cases, and has increased the value and efficiency of operation, while lessening its dangers and minimizing the amount of operative trauma.

THE VALUE OF CLIMATE IN GENITO-URINARY TUBERCULOSIS.*

BY W. H. PRIOLEAU, M.D.,
OF ASHEVILLE, N. C.

IN the accepted hygienic and dietetic treatment of tuberculosis of the lungs, one of the most important laws laid down, is that the patient should, if possible, seek a change of climate so soon as the disease is recognized. This should apply not alone to the victim of pulmonary tuberculosis, but equally so to the tuberculous disease when located elsewhere, whether in the larynx, kidneys, bladder or joints.

When the lungs only are infected, a cure is much more favorable than when any other organ is the seat of the disease. There are several apparent reasons for this—the diagnosis is made much earlier in pulmonary tuberculosis and the disease is generally confined to the lungs; whereas when any other organ is tuberculous, the process, as a rule, is secondary. At the same time, if the infection happen to be a primary one, it is

* Read by title at the Second Annual Meeting of the American Urological Association, May 8 and 9, 1903, New Orleans, La.

rarely recognized as such in time for successful treatment to be commenced. For example, a patient comes to the office, complaining of weakness, extreme lassitude and drowsiness in the afternoons, some slight morning cough and perhaps a little expectoration; at once, even without waiting for the tubercle bacilli to be found in the sputum, a diagnosis of incipient infection of the lungs is made and systematic treatment is begun.

Again a patient consults you about a frequency of urination, possibly he has the morning drop or may be a slight watery excess from the urethra. Almost the last disease one would think of would be a tuberculous eruption of some part of the genito-urinary apparatus. More than likely it would be considered the result of a venereal infection; especially so, if the patient had ever had specific urethritis. If, when the disease is primary, it were recognized in its incipency, I believe the results would be almost, if not quite, as good as are now obtained in pulmonary tuberculosis.

It is an acknowledged fact that the hygienic-dietetic treatment of tuberculosis of the lungs yields the greatest number of cures when begun in the pretubercular stage of that infection; the same may be expected in genito-urinary tuberculosis, provided we begin our treatment sufficiently early.

The constitutional treatment of tuberculosis, wherever the process may be located, is the same. Such being the case, we know that climate is a powerful adjuvant to our treatment. It has been my limited experience that that climate which gives the best results in pulmonary tuberculosis also does most good in tuberculous infections of the genito-urinary apparatus. The mountain climate of a moderate elevation, where the air is dry and there is a maximum of sunshine throughout the year, offers, as a general rule, most to the tuberculous invalid, no matter where his infection is located. As there are exceptions to all rules, so not infrequently do we find cases which respond to treatment more readily at the seashore, or in the pine-land region, only a few feet higher than the sea-level. This is apt to be the case with those infections contracted in the mountains, and also with renal tuberculosis. At no time should a patient with tuberculosis of the kidney be sent to an extreme altitude; the increased heart's action caused by the elevation adds more work to the already inflamed kidney and thus does away with the benefit which might otherwise be expected from the climate.

As a general rule, it might be said that a moderate altitude, when it suits a case, is the most desirable; for when a patient regains his health at such an elevation he can return home with less likelihood of the disease reappearing; whereas, if he had regained his health at a very high altitude, it is questionable whether it is ever advisable for him to leave there.

While climate is a most valuable adjunct to the treatment of genito-urinary tuberculosis, at the same time it cannot effect a cure by itself. More

important even than climate is diet; and then come the adjuvants, according to the organ or part of organ diseased. It is true of the tuberculous invalid, as it is of the healthy man, that it is only the assimilated food which nourishes the body. Superalimentation most undoubtedly does harm in urinary tuberculosis.

Excessive ingestion of food means extra work for the kidneys, besides the overproduction of uric acid xanthin, etc. The extra work imposed on a diseased organ would produce sufficient injury by itself; but along with the increased work, we have the passage of irritants through the kidneys, bladder and urethra. If any of these be diseased, the inflammation would be increased by the acid urine. Just as we avoid over-feeding because of the extra work and production of irritants, so we eliminate from the patient's diet all foods and drinks which are known to be genito-urinary irritants; namely, tomatoes, strawberries, condiments, alcohol and carbonated waters.

If the sexual apparatus is the seat of disease we should endeavor to have the patient control his feelings as much as possible and avoid all mechanical irritation.

Instrumentation of the tuberculous genito-urinary apparatus is seldom advisable; the friction caused by the passing of an instrument over a localized tuberculous spot only increases the process.

In all cases of genito-urinary tuberculosis, we must rely on hygiene and diet; and as adjuvants, use urinary antiseptics and sedatives; always remembering to select a suitable climate for the patient, as you would do were his lungs diseased.

SEASICKNESS.

BY WILLIAM F. WAUGH, A.M., M.D.,
OF GREEN BAY, WIS.

If anyone possesses a theory as to the treatment of seasickness, he should be very careful of it, as it is fragile property, easily damaged. Especially should he avoid the vicinity of water, for dampness is fatal to it. The theory should not be allowed to come within 100 miles of a steamer.

Leaving Chicago Saturday evening, on Sunday we encountered a brisk head wind; the waves tumbling in confusion, and here and there a white cap. Nothing special to a man who has seen Old Ocean in his boisterous moods, while Boreas played horse with him—and yet of our 100 fellow-passengers nearly all succumbed. The writer, old sea-dog too, surrendered at once; but he is an expert in this malady, feeling its effects always by car, even on the city cable cars or in a carriage. And yet the good ship "Georgia" did not roll and only pitched gently with a long easy swing that had no savor of the disagreeable in it. If this note, perchance, catch the eye of anyone who voyaged in that ancient tub the U. S. S. Swatara, second rate, and recollects the roll of 42 degrees—sideways—and the combined pitch—

fore-and-aft—ending with a jerk like the crack of a whiplash, they—well, they haven't forgotten.

The theories as to the nature and causes of seasickness are good—all of them. Possibly some of our fellows in misery were bilious, probably some had overloaded stomachs and bowels; but obviously this does not account for the unanimity with which all paid tribute to Neptune's representative on these waters. Ocular deficiencies may have a part, for the unaccustomed strain on the accommodation proves trying, and induces headache, relieved by closing the eyes.

But there appears to be a state induced in most persons by the unaccustomed motion that is analogous to that caused by snake venom—a paralysis of the abdominal vasomotors with accumulation of the blood in the viscera and consequent anemia elsewhere, especially in the brain. *Hinc illa lacryma*—hence the gastric hyperesthesia. And is not the stomach hyperesthetic! Mark Twain remarked: "On the second day out I hove up my immortal soul." And really, our hopes too, for after completely emptying ourselves we took a minute granule, but the stomach found it and brought it up—and we really hope the soul is not still more infinitesimal.

Now, if this vasomotor splanchnic paresis theory is good, the same remedy that has proved effective in snake bites should answer here—strychnine, in doses enough to restore a normal pulse. It has already been shown that atropine, just enough to obviate the cerebral anemia, will relieve in many instances; and yet the strychnine seems more directly applicable. There is no reason why they should not be given simultaneously, as in this instance they are synergistic. Or, better, give in alternation, since each has its own indication of full effect. Give to an adult atropine gr. $\frac{1}{1000}$ every ten minutes until slight dryness of the mouth is felt. This is invariably the first evidence of its action, and neither dilatation of the pupils nor flushing of the face are requisite for the full therapeutic effect, except in cases of hemorrhage, where it is an object to get the blood into the cutaneous capillaries and out of harm's way as quickly as possible. The therapist, whose work is regulated with precision, will suspend atropine as soon as the mouth begins to be dry, and administer another dose of similar dimensions only when the dryness begins to subside. In this way all unpleasantness is avoided and yet the full benefit secured.

Strychnine should be given in doses of gr. $\frac{1}{100}$ —half a milligram—every ten minutes until the pulse has acquired normal tonicity, and thereafter just often enough to sustain this effect. This allows for all possible variations as to susceptibility, idiosyncrasy, degree of severity of the attack and obstinacy of its effects, etc. To those unaccustomed to dosage regulated by effect, the quantity required in some instances will seem enormous, even perilous; yet nothing is safer, surer. If gr. $\frac{1}{40}$ of strychnine is sufficient to relieve the vasomotor paresis present, give that much and then stop it; if the depression is so

profound that half a grain is required to restore tonicity, give that and quit—or rather follow with enough to maintain the effect, since the cause is continuously acting.

And do not let the patient mope. The best way to be seasick is to sit gazing at the waves and think how sick you are. To deepen and prolong an attack, go to bed and give up. "Resist the devil and he will flee from you," and no one who has suffered with this fiendish malady will for a moment doubt its satanic personality. Resolutely walk it off; keep busy; get the thoughts off yourself and on anything capable of distracting the mind from introspection; and the attack will be soon over. Was there ever a case of such severity as to justify the recommendation of a Frenchman, to stupefy with chloral and remain in that condition during the entire voyage?

Anticipate the voyage by clearing out the alimentary canal and practise a salutary abstinence before and during the trip. Determine not to give up if taken, but fight it out. Take the remedies advised, in a spoonful of hot water—the naked alkaloids are thus very quickly absorbed and the hypodermic syringe is superfluous. Don't take all the numerous remedies suggested but cling to a really scientific treatment, based on a clear idea as to the pathology.

Have I tried this theory in practice? Well, no; not yet. You see it is still young, just new-born in fact, and one should not recklessly expose it to the whims and arrows of outrageous fortune, until it has gained some strength.

MEDICAL PROGRESS.

MEDICINE.

Acute Dilatation of the Heart.—A most interesting and exhaustive article by D. DE LA CAMP is contained in the *Zeitsch. f. klin. Med.*, Vol. 51, Nos. 1 and 2, and materially increases one's knowledge of the etiology of acute dilatation of the heart. In all the experiments the size of the heart was measured by the Roentgen rays, so that the results must be looked upon as absolutely accurate. In the first series, a large number of patients were requested to work a specially constructed apparatus to the limits of endurance, and the skiagraph was then compared with the one taken several hours before. The endurance was greatest in convalescents from mild disease, least in those afflicted with neurasthenia and hysteria, but an increase in cardiac volume, sufficient to warrant a diagnosis of acute dilatation, was absent, even in myocarditis and endocarditis. Only one girl, suffering from severe loss of compensation, secondary to a mitral lesion, presented a marked increase in size after a walk of one hour, which considerably taxed her strength. Healthy porters were then instructed to wrestle up to exhaustion, with absolutely negative results, even when circulation was embarrassed by a tight band around the abdomen and dyspnea and cyanosis were marked. Large doses of alcohol and forced respiratory movements were also without result. The following experiments were then made with animals: (1) A dog is forced to rotate a wheel until exhausted for several days in succession, so that the animal finally dropped as if dead. No increase in vol-

ume could be detected. (2) The vagus was irritated with the faradic current till heart action ceased. An acute dilatation of the ventricles set in. (3) Traumatic aortic insufficiency had no effect. (4) Introduction of air into the veins caused death by acute dilatation. (5) Saline infusion till the heart stopped beating was without influence. (6) A fatal dose of digitalin caused contraction of the ventricles and dilatation of the right auricle, with general change in shape. (7) Muscular exertion after daily venesections and starvation had no effect, but acute dilatation was very marked, if the animal was fatigued after the contents of a tuberculous cavity or some other toxic material was injected. (8) Phosphorus and oil of pennyroyal caused a fatty degeneration of the heart, and some relaxation, not amounting, however, to dilatation. (9) A strange behavior was noticed when all extracardial nerves were severed, the animals became fatigued after the slightest exertion, yet the heart-shadow remained nearly normal. All the experiments proved that a normal heart, or one the seat of only slight lesions, is incapable of overdistention, no matter how its working-capacity is taxed. The records of a number of cases of dilatation observed by the author are in accord with this, for in all there was some serious lesion. In the non-fatal cases this may not be evident; the heart may possess its normal size and beat normally after the attack is over. But a careful history and examination will always disclose some previous, not necessarily severe, infection or some chronic systemic derangement, which is sure to alter the heart muscle. It cannot, however, be denied that the healthy heart may occasionally dilate when several injurious factors act upon it at the same time. Thus, besides overexertion, there may also be the coincident ingestion of too much fluid. Soldiers marching long distances, when heavily laden, sometimes suffer from attacks and the effects of rarified air in mountains are undeniable, though not readily explained.

Palpation of the Pylorus.—Many patients have been sent to P. COHNHEIM (*Deutsch. Arch. f. klin. Med.*, Vol. 78, Nos. 3 and 4), with a diagnosis of carcinoma of the stomach, and yet presented only a normal, large pylorus in an abnormal location. Pseudotumors of the abdomen generally include abnormal contraction of the recti muscles, hypertrophic left lobe of the liver, thickening of the aorta and adhesions about the smaller curvature, but a normal pylorus may also impose as a neoplasm. It is generally found in thin people with relaxed abdominal walls and often diastasis of the recti exists. A large number of the patients are consumptive. The condition may sometimes be diagnosed by seeing the pyloric contractions, but far more often they can be felt moving from left to right if the hand is placed lightly upon the tumor after the patient has swallowed some water. A hard tumor will alternately develop and disappear. The contractions are usually not painful, unless an ulcer or pyloric fissure is present. If the tumor does not soften and disappear, but remains permanently hard, a carcinoma is probably present.

Rare Complications of Carcinoma of Stomach.—A patient suffering from an inoperable carcinoma of the pylorus was subjected to gastro-enterostomy by F. KAUFMANN (*Münch. med. Woch.*, Nov. 10, 1903), when severe motor insufficiency and intestinal stenosis developed several weeks after the operation, and the patient finally died of perforative peritonitis. Involvement of the intestines in gastric cancer is not rare; the stools are said to be normal throughout the course of the disease in only 4 to 5 per cent., and in fully two-fifths constipation persists at first and diarrhea later on. Stenosis, however, is very infrequent and may be due to the pri-

mary tumor, where the ligaments are so short that the colon cannot be displaced, or to growth in the intestinal wall itself, either by extension or metastasis. A gastro-colon fistula with feculent vomitus would speak for extension, but generally the exact diagnosis is impossible. In a second case, a stenosing carcinoma of the cardia, complicated by pyloric stenosis, due to metastatic glands, was found to explain the high degree of dilatation and motor insufficiency in a stomach whose cardiac orifice could hardly be passed by a sound. A similar condition is sometimes brought about by direct extension of the carcinoma or by involvement of the vagus branches, or by two independent tumors.

Method of Using Antitoxin.—Few physicians now hesitate about the use of antitoxin in diphtheria, but there is considerable difference of opinion in regard to the dosage and the frequency with which it may be given. The rule seems to be to give a full dose, which varies greatly with the age of the patient, the severity of the disease and the physician's personal opinions, and then repeat the dose in twelve to twenty-four hours. This frequently requires very large doses, and in very severe cases is sometimes inefficient. C. F. WELDEN (*N. Y. Med. Jour.*, Nov. 14, 1903) has changed this method somewhat by giving a moderate dose, about two thousand units, and repeating it every three hours till results have been obtained. In this way toxic symptoms may be avoided, and the system more quickly brought under the control of this agent.

Treatment of Pulmonary Tuberculosis with Raw Meat.—This is an investigation based both on private and hospital practice. B. S. KNOTTE (*Roussky Vrach.*, Nov. 1, 1903) reports in detail the case of a neurasthenic thirty years of age, who had suffered ten years ago from syphilis for which he received specific treatment. For the last three years patient showed undoubted symptoms of pulmonary tuberculosis. He was put under treatment for three months, during which time he was fed with fresh meat-juice, expressed from raw meat; later on he was also given between 80 to 100 grm. of meat without the fat. During all this time he was attending to his business as usual. The author states, however, that instead of improving the patient grew gradually worse, so that the treatment had to be discontinued. It was only a second course of treatment extending over a period of five months, which seemed to be of very great benefit to the patient, so that the author could find permanent and stable improvement. In the other cases, some of which were in an advanced stage of the disease, the author was guided in administering the juice by the patient's ability to digest it, for to some it was so repugnant that they could not be persuaded to drink it. The quantity of meat ingested was between 300 to 650 grms. per day. At the same time the usual tuberculous treatment was not set aside. Although no cure was noted there was an undoubted improvement in many of the cases, and the author unhesitatingly advises the treatment in cases where climatotherapy is beyond patient's reach. Proper care should be taken of the functions of the liver and kidneys. The gist of this method of treatment lies in energetic feeding. But the author is also inclined to attribute to raw meat or juice a sort of specific effect on the tuberculous process.

Death from Acute Circumscribed Edema.—Cases of localized edema appearing rapidly in certain parts of the body without any known cause and in a few hours or days as quickly disappearing, were first reported by Quincke in 1882. Only two instances of death have been mentioned as resulting from this cause, and they were due to the fact that the edema involved the upper air passages and caused immediate suffocation. E.

STRÄUSSLER (Prog. Med. Woch., Nov. 12, 1903), reports the case of a soldier, twenty-three years old, who was suddenly awakened in the night with a feeling of suffocation, and although medical assistance was near at hand, he died before a tracheotomy could be done. He previously had been confined to a hospital for a few days on two occasions suffering from edema of the scrotum and penis. A history was obtained that his father and a brother had suddenly died from suffocation without known cause, and heredity seems here to have been an important factor. An autopsy failed to disclose any lesions of the heart, lungs, kidney or liver and the circumscribed swelling of the tissues of the neck and larynx were the only discoverable pathological lesions.

Diagnosis of Diabetes.—Although the diagnosis of this disease depends upon an examination particularly exact in its findings when properly done, yet there are several reasons why mistakes are frequently made. R. T. WILLIAMSON (Med. Chron., Sept., 1903) shows how often the disease is overlooked because the prominent symptoms are not complained of and no urine examination is made. Loss of flesh and increasing weakness may be the only symptoms for months. Pruritus of vulva and eczema of external genitals may be first indications of diabetes. Defects in vision, phthisis, carbuncles or attacks of pains in the legs of an irregular type accompanied by loss of knee-jerks, but no other tabetic symptoms, may lead to the suspicion that diabetes mellitus is the true cause. Coma may even supervene before a true diagnosis is made. On the other hand, small quantities of sugar in the urine may be held responsible for too many of the symptoms of which the patient complains, and it is necessary to be sure that we are not dealing with a simple, temporary glycosuria, or that the reaction is not due to some other reducing agent in the urine. In the examination of urine for sugar in most cases Fehling's solution is the only test required. If no oxide of copper be thrown down on boiling, and if no greenish precipitate appears when the mixture cools, then sugar is absent in a clinical sense. If a precipitate is present and the other symptoms are present, the diagnosis of diabetes is justifiable. If, however, the precipitate is very slight and there are no symptoms present the question arises whether the reaction is due to sugar or some other reducing agent such as lactose, pentose, uric acid in excess, glycuronic acid, alkapton, etc. The phenyl-hydrazin test is the best to apply in these cases, and a simple modification of it may be done as follows: A test-tube of ordinary size is filled for about half an inch with hydrochlorate of phenyl-hydrazin, then acetate of sodium, in powder, is added for another half inch. The test-tube is half filled with urine and boiled for about two minutes. After standing a half hour the sediment at the bottom is examined under a microscope. If glucose is present bright sulphur-yellow needle-shaped crystals will be found. It is so sensitive in its results that crystals will be present when only 0.015 per cent. of sugar is present. Glycuronic acid is practically the only other substance which will give these crystals. If it is desirable to be absolutely sure that these tests are caused by glucose, the fermentation test may be tried and glycuronic acid will give no reaction in this case.

Infectious Diseases among Negroes.—The experience of many years as physician among the tribes along the west coast of Africa are embodied in an article by A. PLEHN (Virchow's Archiv, Vol. 174, suppl.). It is an interesting fact that the uncivilized negro is almost immune toward many infectious diseases which are common and fatal among the whites, but that he has in malaria and dysentery formidable enemies which oft-

times decimate his rank. Tuberculosis, scrofulosis and rickets are hardly ever seen, syphilis is rare and runs a mild course, tabes and progressive paralysis has never been observed, and only a few cases of malignant tumor and leprosy have been met with. Even contused wounds heal rapidly, and if an infection occurs, it is generally mild and circumscribed. Despite indiscriminate sexual intercourse, gonorrhea is not usually followed by its disagreeable sequelae, and sterility among women is not encountered often. Diseases which do not occur at all are anthrax, glanders, hydrophobia, diphtheria, and scarlet fever, while measles is common, though mild. Smallpox plays an important rôle in the tropics, but it often appears more like a skin-disease than a constitutional infection. Vaccination does not seem to protect as well as in Europe. The negro race seems to be rather insusceptible toward yellow fever, and plague, exanthematic typhus, cholera, recurrent and Malta fever are only introduced occasionally. Typhoid, on the other hand, is more common and presents the usual course, except that diarrhea is often absent, and cerebral symptoms are especially marked. A large percentage of cases are not real typhoid, but colon infections. The most important disease undoubtedly is dysentery of amebic origin, though it also runs a mild course, and is readily controlled with calomel and bismuth. Pneumonia presents the following peculiarities: It frequently begins centrally, often affects one or both upper lobes, and the local signs may change place. The onset is not acute, but slow, with bronchitis. Serous exudation into the pleura does not complicate the disease, which seems to speak for the tuberculous nature of the former. Mumps is frequent, and mild and acute articular rheumatism frequently attacks the natives, causing considerable suffering, but never involving the serous cavities or the endocardium. Most cases of beriberi run very acutely and are often fatal in twelve to forty-eight hours. The entire symptom-complex points toward a severe infection, involving especially the sympathetic and vagus nerves; despite abundant material it was, however, impossible to determine the nature of the poison and its probable portal of entry. No drug has a favorable influence upon the disease and morphine, which must be given freely on account of the intense pain, seems to hasten the end. The condition of the liver at autopsy is interesting, since it often shows interstitial changes, besides marked degeneration. The opportunities for studying malaria are especially favorable in western Africa, since it forms a veritable scourge for the black race. It is a mistake to believe that one attack protects from others, though it is common to find plasmodia in the blood as harmless parasites, without causing fever. Even young infants are as a rule infected, though not ill. The parasites are not entirely latent in these cases, since an anemia with splenic tumor will gradually develop. The blood examination is of less value for the diagnosis of an obscure disease, since one cannot always tell if the plasmodia are active and latent. A relative immunity is frequently seen, so that subsequent attacks are much milder, and this may account for the low mortality. All three forms of parasites, together with transitional types in all possible combinations, may be detected in the blood in actively infected negroes. Quinine generally acts very promptly. In conclusion, the author states that the remarkable resistance of the negro cannot alone be explained by the absence of alcoholism, tuberculosis and syphilis; it is a racial peculiarity which is gradually lost with civilization.

Infection with the Bacillus Typhi Murium.—Cultures of the *Bacillus typhi murium* are frequently employed to kill mice, and hitherto no infection in man

has been observed, so that the germ was considered harmless until R. THOMSDORFF (Münch. med. Woch., Dec. 1, 1903) had occasion to observe a small epidemic in a village. The symptom developed two days after infection and merely amounted to a moderate diarrhea of two to seven days' duration, vomiting in a few cases and a mild prostration. In only one instance did the disease prove fatal, owing to a general poor condition of the patient. The bacilli were found in large numbers in the cholera-like stools, and were readily agglutinated by the blood-serum of the convalescents.

Determining Pressure in Right Auricle.—G. GARTNER (Münch. med. Woch., Nov. 24, 1903) has discovered a very simple method of measuring the pressure in the right auricle. If the veins of the arm are observed while the arm is hanging by the side of the body, they will be found filled, but as soon as the arm is raised beyond a certain level, they collapse and become invisible. The distance between this level and the right auricle accurately corresponds to the auricular pressure. In normal individuals the phenomenon is noticed when the arm is raised to the level of the fifth, fourth or third rib; in pathological cases it must be elevated to the jugulum sterni, sometimes even to the level of the eyes or the top of the head. The measurements should always be taken from the upper border of the fifth rib at its sternal insertion; though this does not correspond exactly to the position of the auricle, it is a fixed point concerning which there can be no doubt. The highest figures obtained were 37 centimeters in a case of beginning infiltration of both apices. In pulmonary infarction a marked fall was observed after an injection of camphor, coincident with the disappearance of dyspnea and cyanosis. In general the pressure is above normal in all cases of respiratory or circulatory embarrassment, but the chief value of the method lies in the fact that it may be the first symptom. The patient should be in the sitting posture with the sternum as nearly perpendicular as possible. Excepting well-nourished children, some veins sufficiently prominent can generally be found along the back of the hand or the radial side of the forearm. Cold interferes with the phenomenon and calcareous vessels should be avoided since they do not collapse readily; and good light is essential, the patient's respirations should be free and easy and the arm should be horizontal, with muscles relaxed.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Relationship of Duodenal Ulcer to Acute Eczema.

—The relationship of burns to this form of ulceration is well known, also the effect of the modern antiseptic treatment of burns in reducing the frequency of duodenal ulcer is generally recognized. HUGH H. BORLAND (Lancet, Oct. 17, 1903) relates the following history of an eight months old baby, who succumbed to this most unique condition. The child was breast-fed until the seventh month. Very early he began to suffer from eczema of the head, which persisted. He was vaccinated at the fifth month. At the sixth month the face became eczematous. Submaxillary gland swelled and appeared to be suppurating. This subsided, however. At the eighth month there was an exacerbation of the eczema which took on a virulent form, extending to the trunk. After this the temperature rapidly became subnormal and all the other characteristics of profound infection were present. The skin was so affected that it was abraded by the simple wiping away of the exudate. Later the eruption became pustular and discrete. He vomited some blood and from this time the motions were tarry. He had extreme pains in the abdomen;

vomiting was marked. These characteristic symptoms of ulcer persisted until the child died of hemorrhage. The pathological report showed no evidence of peritonitis. In the lesser sac was a clot practically filling it. A round ulcer on the posterior wall of the duodenum just beyond the pylorus had perforated, the opening being about the size of a split pea, and directed toward the lesser sac. The stomach was normal, although slightly congested. All other organs were normal. The skin of a child is relatively greater in area than that of an adult in its ratio to the body-weight. Hence cutaneous lesions in infants would be expected to produce correspondingly greater disturbances in the intestines. Whether this be due to impairment of the function of the skin, to nerve irritation, to destruction of red corpuscles or leucocytes or to absorption of toxins from the disintegration of the blood corpuscles is not known, although it is probable that the belief in a septic embolus being deposited in the walls of the stomach and so establishing a zone of lowered resistance is the most probable. As this is the first recorded case of ulceration following eczema nothing can be said as to the relative rates of appearance of the ulcer, which is known to give evidences of its presence in burns as early as from four to six days after the injury. It is probable that if the attention of practitioners had been called to these possible relationships, more literature might have been collected, because many cases have probably passed unrecognized.

Rôle of the Blood Fluids in Phagocytosis.—The experiments performed by A. E. WRIGHT and S. R. DOUGLAS (Proc. of the Royal Soc., October 31, 1903) show that the blood fluids play an important part in phagocytosis. They modify the bacteria in a manner which renders them a ready prey to the phagocytes. This is spoken of as an "opsonic" effect (*opsono—I cater for; I prepare victuals for*), and the authors employ the term "opsonins" to designate the elements in the blood fluids which produce this effect. The question as to whether the blood fluids contain, in addition to opsonins, also an element which directly stimulates the phagocytes, remains for the present unsolved. The opsonic power of the blood fluids disappear gradually on standing, even when the serum is kept in a sealed capsule sheltered from the light. The opsonic power of the serum is diminished when this last has been digested with typhoid bacteria. The opsonic power is diminished while the phagocytic power of the leucocytes is preserved when the blood fluids and corpuscles are separately digested with *Daboia* venom. This probably explains the reduced resistance which supervenes upon viper bites. The study of immunity must therefore include the phagocytic power of the white blood cells, the agglutinating, bacteriolytic and bactericidal powers of the blood-fluids and, lastly, the opsonic effect of the latter. As a concrete example is adduced the following: The condition of immunity to staphylococcus which can be induced in patients unduly susceptible to staphylococcus infections, by the inoculation of properly adjusted doses of a sterilized staphylococcus culture, is associated with an increase of the phagocytic power of the white blood corpuscles, and unaccompanied by any development of a bactericidal power in the blood fluids.

Pathology and Classification of Intussusceptions.

—Intussusceptions may be classified into single, double, triple and so on, but inasmuch as the lesion is usually considered to be single, these classes are by no means universally employed. EDRED M. CORNER (Ann. of Surg., Nov., 1903) in a long analysis of this disorder, shows that double intussusceptions are of great frequency. He divides the single form into four varieties, viz., enteric, that is, of small bowel only; ileocolic, when small bowel is prolapsed into the ileocecal valve; ileocecal, when the

valve forms the leading part of the intussusceptum; colic, when only large bowel is implicated. By ileocolic is meant that invagination has begun in the ileum and then passed wholly or in part through the valve. He concludes, (1) that double intussusceptions are more common than single; (2) that ileocolic intussusceptions are the most common of all, colic-ileocecocolic next; (3) the single ileocecal variety is decidedly uncommon, found usually in chronic cases; (4) the ileocolic is the most common variety of primary intussusception; (5) the inversion begins laterally and most frequently in the last part of the ileum, which becomes engaged in the jaws of the ileocecal valve; (6) the so-called ileocecal form probably arose in the last half inch of the ileum or the caput-coli; (7) that both in man and animals the ileocecal valve is probably never primarily responsible for the trouble. His conclusions regarding intussusceptions associated with Meckel's diverticulum are that the two following groups exist: (a) when the process opens at the umbilicus as well as into the small intestine; (b) when it is only in connection with the intestine. This is the larger group.

Physiological Factors Which Govern the Temperature Range in Tuberculosis.—In studying the normal temperature curve of the monkey, J. J. GALBRAITH (Proc. Physiol. Soc., Jour. of Physiol., Nov. 2, 1903) finds that it closely corresponds in form with that found in simple tuberculosis in the human subject, there being an imperfect control manifesting itself in the form of an increased diurnal variation and a greater liability to disturbance of the form of the wave by variations in the external conditions. The author studied the behavior of the wave in the tuberculous monkey, with the view of ascertaining whether the temperature swing in human tuberculosis is not capable of a physiological explanation. The temperature curve in the tuberculous monkey shows the following features: (1) An increased amplitude of the wave as compared with the average; (2) the mean daily temperature remains practically unaltered, the exaggeration taking place in the downward as well as in the upward direction; (3) the swing follows exactly, as in the normal animal, the curve of metabolic activity; (4) reversal, or modification of the direction consequent on reversal, of the metabolic phases, the tuberculous monkey reacting more rapidly than any of the others to the various experimental changes; (5) exaggeration of the accidental waves caused by excitement exercise. The conclusions deduced from the study of the curve (which are strongly supported by clinical evidence and study of the tuberculous swing in man) are: (a) That the character of the wave in the tuberculous monkey shows a further exaggeration of the deficient control which characterizes the normal monkey as compared with man; (b) that the swinging temperature of simple tuberculosis is metabolic in origin, as opposed to toxic, and can be explained by physiological laws; (c) that a constant rise of the mean temperature takes place, associated with secondary pathological changes.

Influence of Fever on Adrenalin Glycosuria.—Since the sugar sometimes disappears in diabetes when some febrile disease supervenes, the effects of artificial fever, such as is caused by injury to the corpus striatum, upon glycosuria, presents an interesting problem, especially since lesions of the "sugar center" in the fourth ventricle often causes a fall of temperature. E. ARONSON (Virchow's Archiv, Vol. 174, No. 2) first studied the effects of adrenalin alone. Subcutaneous injections of 0.01 gram to 1.5 kilogram body-weight, regularly, cause an excretion of sugar varying from 0.5 to 5.5 per cent. Intravenous injections are still more effective, but sufficient absorption from the mucous membranes does not

take place. The sugar can be detected very soon; thirty minutes after injection 3.6 per cent. could be obtained and the amount was generally highest in four to six hours. A second injection does not materially increase the amount. Acetone was found in only one case, albumin in none. The effects of adrenalin never last longer than twenty-four hours, since the fall is equally as rapid as the rise. The condition of the temperature is variable; there is often a slight fever with commercial products but a subnormal temperature if fresh extract is used. The same injections were repeated with animals whose heat-centers had been injured and in no case was sugar detected in the urine. This interesting observation is best explained by the increased metabolism which goes on in the muscles during fever; this stimulus is probably sufficient to burn up the sugar which otherwise would be lost. If glycosuria is complicated by severe organic disease this peculiar action may be absent.

PHYSIOLOGY.

Resistance of Serum Proteids to Tryptic Digestion.—The interesting fact that a considerable portion of the proteids contained in blood serum preserves for a long time its coagulation in the presence of trypsin, is revealed by the researches of C. OFFENHEIMER and H. AUN (Beiträge z. Chem., Physiol. und Pathol., Sept., 1903). A preliminary coagulation destroys this property, which may also be considerably weakened by the addition of a small quantity of pepsin-hydrochloric acid. This resistance cannot be adequately explained by the hypothesis of the presence of an antitrypsin, but rather upon the basis of the existence of a specific configuration of the serum molecules, that furnish insufficient points of attack for the molecules of the ferment.

Laking of Red Blood Cells.—The interesting question presented itself to H. KOEFFE (Pflüger's Archiv, Sept. 11, 1903), namely, whether the laking of blood, the melting away of the red blood cells, the issue of hemoglobin from the latter, hemocytolysis, hemolysis—whether all these are the various expressions for one and the same process. Do all substances that destroy red blood cells, do hemolysins, globulicides, hematic toxins, act in the same or different ways? To answer this question the author performed a long series of experiments with the following results: Red blood cells are laked or lose their hemoglobin under the influence of (1) water, (2) heat, (3) hydrogen ions, (4) hydroxyl ions, and (5) a series of substances that dissolve fats. The laking brought about by water is attributed to the extraordinary difference between the osmotic pressures within and without the cells, which brings about a disturbance of the semipermeable wall. The laking produced by ether, chloroform, alcohol, acetone, etc., which are all capable of dissolving fats, suggests the hypothesis that the semipermeable wall of the red blood cell consists of or contains a fatty compound. The action of heat in causing hemolysis would be explained on this basis, for heat would dissolve the fatty wall of the cells. The relative constancy of the temperature at which laking takes place would go hand in hand with the constancy of the melting-point of fats. To explain the laking action of hydrogen and hydroxyl ions, the author supposes that the former hasten the splitting of an ester in thin watery solution into the corresponding alcohol and acid, a process known as catalysis; while the hydroxyl ions bring about saponification of the ester. All the above agencies destroy the capacity of the cellular wall to be semipermeable, and as a result the hemoglobin is dissolved out.

Elimination of Apomorphine by the Stomach.—The following conclusions were drawn from a series of investigations pursued by A. VALENTI (Arch. Ital., de

Biologie, Sept. 10, 1903): Apomorphine introduced into the organism by hypodermic injection is not found in the material vomited immediately after the injection, nor in the liquid obtained by lavage of the stomach, performed from one-half to six hours after the administration of the drug. This indicates that the emetic action of apomorphine resulting from stimulation of the spinal centers, is not re-enforced by a local action upon the wall and ganglia of the stomach. Since the apomorphine after absorption is not found as such in the gastro-intestinal canal, nor in the urine, it must undergo certain structural modifications within the organism. The production of the special antiperistaltic movements, observed by Schütz in the stomachs removed from animals to which apomorphine had been administered hypodermically, can be attributed only to the final decomposition products of the base, which stimulate directly the muscular and automatic nervous elements of the stomach.

Pathogenesis of Epilepsy.—In a case where epilepsy had proved fatal, D. CRETE (Münch. med. Woch., Oct. 13, 1903) found the cortex of the brain the seat of a number of cavernous angiomas, the largest of which were surrounded by calcified connective tissue. They were probably congenital since the epileptic seizures began in earliest youth. Their relation to epilepsy can hardly be explained by variations in intracerebral blood-pressure since experimental venous stasis, even in epileptics, never brings about an attack and since compression of the carotids in animals, is never followed by convulsions. It is more probable that they irritate the cortex by their constant growth. Angiomas of the brain are rather rare, but have been found in several previously reported cases of epilepsy.

Copper in Syphilis.—There is a cachexia or condition of bad health which is not infrequently shown by old syphilitics, in which there are no focal lesions, and which is manifested by weakness. Arteritis, with its manifold symptomatology and the various spinal degenerations which frequently result from late syphilis, are perhaps the most unsatisfactory manifestations of the disease to treat. A. F. PRICE (Med. Rec., Oct. 10, 1903), who is medical director in the navy, has found that copper exerts a much more beneficial influence over these conditions than either mercury or the iodides. He points out the fact that those cases manifest a peculiar susceptibility to copper, and he knows of no other disease in which this sensitiveness to copper exists. He has tablets of copper arsenite, gr. $\frac{1}{3200}$, which sometimes cause symptoms of prostration and collapse, even when given in dosage of only one per day. Great care must be taken at first till a tolerance is produced, and the drug should be frequently stopped for a few days. It is, therefore, a valuable diagnostic aid. After a dose of $\frac{1}{100}$ gr. is reached the copper sulphate is usually given made up in pill form, with gentian. In acute syphilis the sulphate may be given in doses of gr. $\frac{1}{10}$ from the beginning, combined with mercury. He firmly believes that copper has a very helpful action, and may greatly improve early cases of tabes.

Is Pharmacologic Action Determined by Chemical Structure or by Physical Characters?—Many interesting examples are brought forth by A. R. CUSHNY (Jour. Amer. Med. Ass'n, Nov. 21, 1903), which show that the actions of various drugs are to be attributed more to the physical characters of the entire molecule than to any chemical reactions or combinations of the constituent groups of the molecule. It has been held, on a comparison of the effects of methane (CH_4), which is practically inert, and of methyl alcohol (CH_3OH), which is a depressant to the central nervous system, that the activity of the latter is to be attributed to the

presence of the OH, which may combine with the protoplasm in the same way as with an acid. But, on the other hand, the alcohol may possess some physical property, such as a lower volatility, which endows it with some power to effect certain changes in the cells without any chemical reaction taking place. In support of the latter hypothesis the experiments of Kionka are cited. This investigator found that whilst methane (CH_4) is devoid of narcotic action, CH_3Cl has some effect. The presence of Cl appears to endow the molecule with activity; CHCl_3 is four times more powerful than CH_3Cl ; but CCl_4 , instead of being still more powerful, is only half as depressant as CHCl_3 . This result suggests that the depressant qualities of this series are not determined by their molecular structure, but by some physical character which is present in a large proportion of the chemical group, but not in all of them. Hans Meyer ascribes the depressant action of this group to their tendency to pass from watery solutions into fats and oils. Other examples that lend weight to the physical theory of pharmacological action are the following: It has been found by Sternberg in comparing bitter and sweet tasting substances that the hydrocarbons are practically indifferent, but taste is conferred on them by the introduction of two or more OH groups, when the sense of sweetness follows. Fisher's studies, on the optical isomers, have shown that the yeast cells, yeast ferments and emulsin can differentiate between the dextrorotatory and levorotatory isomeric sugars, while no ordinary chemical reagents select the one in preference to the other. The author has proved that levo-hyoscyamine acts 12 times as strongly in the salivary glands as dextro-hyoscyamine, although these two bodies cannot be differentiated by ordinary chemical methods. The activity of the hemolysis, saponin, appears to be determined by the solubility coefficient to its power of chemical combination. Certain drugs act only in the presence of other bodies, which are practically inert, but which tend to facilitate the solution of the active principles. For example, the active principles of the vegetable cathartics are often less satisfactory when given in a pure form than when mixed with the inert bodies with which they are found in nature.

GENITO-URINARY AND SKIN DISEASES.

X-ray in Circumscribed Peri-urethral Gonorrhoea.

The utility of the X-ray as a diagnostic agent in urology is well recognized. Therapeutically, however, in the diseases common to this special branch of medicine, they have made but limited progress. R. KAUFMANN (Centralbl. f. d. Krankh. der Harn und Sex. Organe, Oct. 24, 1903) describes the technic made at Frankfurt in three cases of peri-urethral infiltration. The intensity of the current was three to four amperes. The tubes were No. 3 and moderately hard. The exposure period was ten to fifteen minutes. In the first exposure a piece of sheet lead was used to shut off the parts intended to be protected. Later, however, a lead cylinder was used. The distance from the tube varied from 10 to 20 c.c. Three cases are detailed in full. They were each of cavernous infiltration which had resisted ordinary forms of treatment. The author does not claim that the rays are a panacea in the treatment of this condition or even that they destroy the bacterial life. It is apparent that they are a very decided factor for good, however they may work, whether by direct destruction of the bacteria or by causing the absorption of the inflammatory tissues. Three cases are not sufficient upon which to base any conclusions, but it would appear that the disorder is sufficiently superficial to lend itself favorably to this form of therapy.

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PHYSICIANS AS HEADS OF MUNICIPAL DEPARTMENTS.

Two years ago, when the recently defeated fusion candidates were about to take office in New York City, the MEDICAL NEWS suggested the advisability of the appointment of a physician as the head of the Health Department. There had been previously a prejudice against the occupation of this position by a regular practitioner of medicine. This prejudice had actually been incorporated into the old charter of New York, so that a physician by a curious anomaly and inexplicable contradiction could not be given the charge of the health of the city of New York. Our suggestion of two years ago did not bear fruit, though it is our pleasure to say that the gentleman who was appointed to fill the position of Health Commissioner, a doctor of another faculty, wisely fulfilled the duties of the difficult office in a manner to deserve all praise. The demonstration of his success in office is to be seen in the lower death rate, which makes the city of New York at the present time almost as healthy as many of the so-called health resorts of the world.

While the present Mayor had the new appointments under consideration, we called attention to the fact that one of the best managed departments

of the city government, during the fusion administration, had been that of the Street-Cleaning Department, at the head of which was a physician. Dr. Woodbury's success in this trying post has been the best possible proof that a physician could have the executive and managerial ability to control and coordinate the large number of assistants required for so important a department. This was in contradiction of the old cry that had formed the basis of the prejudice against physicians as heads of departments that they were likely to be lacking in administrative capacity. The condition of our streets for two years and the number of improvements introduced into the Street-Cleaning Department, have undoubtedly marked the administration of the first physician appointment as one of the most noteworthy in the history of the city.

While the lowered death rate must be mainly attributed to the well-directed activity of the Board of Health, there can be no doubt that the fact that a physician was in charge of the Street-Cleaning Department was no insignificant factor in the production of this very favorable result. These two city departments can be coordinated in many ways with decided advantage to the city's health. Cleanliness in the modern sense is not merely the removal of malodorous material nor the carting off of filth and refuse in order that it may not offend the eye or the nose. True cleanliness has become a study in bacteriology and any one who hopes to succeed in making clean streets that will at the same time be healthful must realize how much bacteria mean in the production of ill health and what important precautions are needed that micro-organisms may not be allowed to infect food products, nor, as far as possible, be blown about, thus finding an entrance into the houses in crowded districts. It was this particularly that the physician Commissioner, who has to our minds so fortunately been allowed to hold over, accomplished to a greater degree than others, because of his special knowledge in these subjects.

We have no doubt that the new Commissioner of the Health Department, Dr. Thomas Darlington, will prove as excellent an example of the administrative capacity of physicians as has the brother member of the profession in the Street-Cleaning Department. Certainly it would seem that the new administration is giving many evidences of its earnest effort and sincere desire to secure the proper management of important departments of the city government. These two

appointments are such as must commend themselves to every one who has any knowledge of the conditions and who knows the men who are thus honored by the new Mayor.

These men will need the active cooperation of physicians all over the city to accomplish the sanitary results that may rightfully be expected of them. This should undoubtedly be given them to the best of professional ability. The percentage of deaths for the past year, recently reported in New York, was only a little over eighteen for each thousand of the population. That for the previous year, 1902, which was the lowest recorded up to that time, was much nearer nineteen per thousand. There is no doubt that these figures can be reduced still lower, and thus many thousands of lives be saved each year. A reduction of even one per thousand in the death rate means over three thousand less deaths than fore. The value of so many lives can scarcely be estimated, though it serves to give some idea of the economic value of the application of the great principles of sanitation and hygiene to the problems of administration in great city departments. There is every reason for hope that the prospect, which seems so bright, will be amply fulfilled.

PRESENT STATUS OF APPENDICITIS.

THE discussion on appendicitis, at one of the meetings of the Harvard Medical Society of New York City, last year, did not bring out many new points in the diagnosis and treatment of this important affection, but it did show the present status of surgical and medical thought with regard to the most interesting of modern diseases. There is now a general agreement that it is practically impossible to diagnose appendicitis itself, that is, as a simple inflammation of the appendix without any involvement of surrounding tissues. What is really diagnosed is always the peritonitis which begins to develop as soon as all the coats of the appendix have become affected by the inflammatory disturbance within that little organ. The recognition of this state of affairs may seem to be of no practical importance and to represent only a change of nomenclature. As a matter of fact, however, it will make appendicitis much more significant and cause the practitioners of medicine generally to be more careful in any attempt to treat severe phases of the malady by medical means alone, if they appreciate that the inflammation at the

time, even when the first sign occurs, is already outside the intestines in the peritoneal cavity, and consequently beyond all hope of direct influence from medication within the intestinal canal.

It is probable that there are certain mild attacks of colic, heretofore considered of very little importance, frequently occurring in children and looked upon as trivial results of indiscretions in diet, which are really little attacks of true appendicitis, that is to say, of a spasm of the mucous canal and the muscular coat of the appendix as a consequence of beginning inflammation in the mucous lining. One physician described a series of attacks that had occurred in one of his own children, in which there was simple colic with no rise of pulse and temperature but with a tendency for the attacks eventually to recur at shorter and shorter intervals. Operation in this case disclosed the presence of a grape-seed within the appendix, and beginning inflammation of the mucous lining.

It has been recognized for a good while now that the conditions found in the appendix at operations in adult life are often significant of very old pathological changes. Strictures of the appendix after all are structurally not unlike strictures of the urethra. It is well known that urethral strictures take many years—at least five to twenty—to form. It would not be too much to expect that corresponding changes in the mucous membrane and submucous tissue of the appendix would take at least as long to form. As a matter of fact, the blood supply to the urethra being quite abundant while that to the appendix is limited, it might reasonably be expected that the changes in the urethra would be considerably more rapid than those in the appendix, yet appendiceal strictures are often quite tight and distinctly indurated.

Apparently all, even the mildest form of colic localized in the lower part of the abdomen is much more likely to be appendicitis than anything else. The distinction between appendicitis and oophoritis or salpingitis, is often impossible, but the appendix must always be the first thought. Occasionally a diverticulum of the intestine may cause symptoms so like those of appendicitis as to be impossible of differentiation, but as this condition also requires operation under the circumstances, the error of diagnosis amounts practically to nothing.

One important fact, brought out in the discussion before the Harvard Medical Society, is that

many surgeons now consider it advisable to remove even the healthy appendix, if the abdomen is opened for some other reason. When this practice was first begun, it was looked upon as a bit of meddlesome surgery. Now even the most conservative surgeons are coming around to the idea, that it is sure not to do harm and absolutely precludes all possibility of the appendix ever being the seat of a serious pathological condition that would require the abdomen to be opened once more. Physicians themselves, when operated upon intra-abdominally, find it rather easy to grant the permission to perform this additional operative procedure, and this after all is the best possible index of the true conservatism of this practice. Future generations will probably know whether the habitual performance of appendectomy in all laparotomies will, by a process of organic modification with transmission of acquired characters, eventually lead to the development of the fortunately evolved being—an appendixless man.

There is practically universal agreement now that while the surgeon and the physician and the patient's friends may regret delay in operation for appendicitis, it rarely happens that there is regret for an early operation. The disease is now known to be so treacherous that no one can foretell its course in any given case. Gangrenous appendicitis may, after a stormy beginning, give a remission during which the patient is apparently getting entirely well; when, as a matter of fact, death is becoming more and more inevitable. The insidious nature of gangrenous conditions in intestinal tissues was well illustrated in President McKinley's case. Some of the worst forms of appendicitis seem to run a course not unlike that of the late lamented President's, running a latent course until it is too late to save life, or, at most, do more than delay the fatal termination, since septic thrombosis of the mesenteric veins will surely lead to subsequent fatal complications. Fortunately, now it is not hard to secure permission for early operation, and in this lies the best and easiest method of cutting the Gordian knot of difficulties that so often surround appendicitis cases.

TWENTIETH CENTURY PROFESSORS.

THE musical query that delighted the audiences of the extravaganza of "1492"—"After the Fair is Over, What Will Chicago Do?" seems finally to have been answered by the recrudescence and production of a crop of "Specialists"

and "Professors," that appears to be blessed with more than pernicious activity. This from an ethical standpoint, is bad enough, though when one reformer advocates the cult of a single meal a day, with a cloistered life behind closed doors, while another extols the fad of outdoor exercise, with frequent but reduced amounts of food, it does little harm, as the extremes, in these cases, seldom meet across the barrier of the exigencies of an active business career.

But when a man, like Dr. John Dill Robertson, who might popularly be supposed, by the laity, to be an authority in a learned profession, announces to the world, from the Auditorium at Chicago, that cleanliness is sitting at the right hand of disease rather than next to Godliness, and that it is not injurious (despite the traditional gilded youths of the Roman captives—the *jeunesse dorée* of the triumphant processions of Nero) to choke the pores of the skin with dirt and sudorific accumulations, it is time to cry a halt.

The gospel, according to this latter-day prophet, is explicit, if it is nothing else. "When people leave off bathing, there will be little or nothing for the doctors to do. Pneumonia, colds, and a hundred other ills, result from the foolish habit of washing the body. To bathe is to be dirty, for you thereby make a sewer of the skin. Blood attracted by the skin, gives up products that should be left to seek a natural outlet, and soils the skin." Later on, he goes farther afield and after saying that the theory that the closing of the pores of the skin would result in death is false, denounces in no measured terms, the habit of taking what he terms "dry baths." For he says "the rubbing of a rough towel over the skin removes the natural scales from the 'false skin' and conduces to the growth of bacteria on the skin."

All this will doubtless seem attractive to certain classes, in any community. As a nation we are to a degree still young to the importance of constant ablutions; a sense of which has been carried to such an extent by our English cousins—and we are now only beginning to emerge from the Saturday night tub epoch, and becoming habituated to the daily bath habit. Weary Willie and Plodding Pete have not yet included folding bath tubs in their traveling impedimenta, and will welcome converts to their fixed habits, while the schoolboy will be at last induced to believe that he has found something seductive in modern science.

The worst of it, too, is the singularly opportune time that the "professor" of these heresies has

taken to profess. Many a scheme that would have failed on account of its folly has been aided and has acquired headway from some fortuitous outside circumstance, and the cold weather that has been so prevalent of late, only adds to the ease with which a bath is dispensed with. Had Dr. Robertson launched his crusade in the hot summer months, when cold water was a necessity and not a luxury, the raucous echoes of his diatribe would hardly have reverberated beyond the walls of the Auditorium.

As to the facts from which he draws his deductions, and the statistics from which he reaches his conclusions, they all depend on a *single* Eskimo, who was deported from Greenland, and after being washed, died of pneumonia at Boston. One case, however, is hardly enough to prove the habits of the civilized world at fault, even to the satisfaction of a Chicago jury and there is no more reason to believe that one Eskimo will constitute a winter, any more than that one swallow will make a summer. Anyone, moreover, who has seen a Greenlander in his native habitat, can easily understand that the removal of his grease-stained, oil-impregnated, blubber-saturated epidermis would leave him in a condition to acquire any form of sudden death that might be lurking in his immediate neighborhood. Even here, however, we are inclined to attribute his death more to a change in his raiment than to the unaccustomed effects of soap and water. Several years ago, a band of Sioux chiefs, that had come on a mission to Washington, were allowed, in exchange for some lands, to choose whatever was nearest to their aboriginal desires. They promptly selected a sectional wooden house, a cylindrical stove, broad-cloth clothes, silk hats and hobnailed shoes. On their return, the house was built, the fire was started, and for several days the air was redolent of burnt leather and singed woolen, in combination with goat-like and other Indian smells. Finally hunger became imperative, and they were forced out of doors in search of game. The clothes, however, with the hats and shoes, were left by the fire, and the braves took to the trail in the scandalous costume of the Greek slave—modesty only being assuaged by the habitual breech-clout and the customary feather. That they all died from pneumonia is true, but there was no record of any concomitant cause of death from bathing and there is no more cause to attribute it as one in the case of the Ice-lander.

As Balzac remarked, there is nothing in the

world that resembles a pussy cat so much as another pussy cat, so there is nothing in the world of animate creation that is as dirty as a dirty Indian, unless it is another filthy savage, or a *clean* Eskimo. Nevertheless Indians do use baths in sickness, but as they resume the coverings to which they are accustomed, the deaths can usually be accredited to the disease for which they took the baths rather than to the baths themselves. An Eskimo's clothes are not only fearfully and wonderfully made, but are alive with interest and—other things. They are fashioned from incompletely cured skins, are very heavy, and like the mink coat of Cetawayo, are "possessed of a very fine odor when wet." Deprive a native of these, and then turn him loose to the east wind of Boston, and the result will be fairly certain, no matter whether "he is to bathe in fiery floods, or to reside in thrilling regions of thick ribbed ice."

With regard to the "Professor," take him all in all—his published reports and his utterances—we presume that he is a medical man, but we most sincerely trust that we shall not see his like again. In the first place we do not believe that he practices what he preaches, but rather that his sole desire is to bathe in the turbid waves of the notoriety that his statements have evoked, and that he seeks merely to apply the golden ointment, derived from his advertising, to the itching palms of his medicinally dirty, and ethically unwashed hands.

The birth rate of Chicago is large, and more than one fool is born in every hour. Wisdom, too, is not confined to babes and sucklings, and this enterprising "specialist-surgeon" doubtless sees a large and extending clientele among the credulous and ignorant masses of the community. As James Russell Lowell might have said

John D—

Robertson, he

Said, they didn't know everything down in Judee.

ECHOES AND NEWS.

NEW YORK.

Fiftieth Anniversary of the New York Infirmary for Women and Children.—A meeting to celebrate the fiftieth anniversary of the New York Infirmary for Women and Children will be held at the Waldorf on Saturday, January 16, at a quarter past eight o'clock. Addresses will be given by Dr. William H. Welch, of Johns Hopkins University, Miss M. Cary Thomas, President of Bryn Mawr College, Dr. Emily Blackwell and Dr. Annie S. Daniels.

Dr. Macy to Be Transferred.—It has just become

known that the State Commission in Lunacy has voted to transfer Dr. William A. Macy, superintendent of the Willard State Hospital, to the Kings Park branch of the Long Island State Hospital, Dr. R. M. Elliott of the Flatbush branch of the Long Island State Hospital to Dr. Macy's place at Willard hospital, and Dr. Oliver M. Dewing, now superintendent at the Kings Park branch, to Flatbush.

Suspension of Tuberculous Policemen.—At a recent meeting of the New York Health Department, which was attended by President Lederle and Commissioner Doty, a resolution was passed to the effect that no member of the Police or Fire Department shall be permitted to remain on duty when found to be suffering from tuberculosis in its infectious stage. That action was taken on the report of Dr. E. T. E. Marsh, chief surgeon of the Police Department, that seventeen members of the department were suffering from the disease in a stage dangerous to their associates. It was explained by Dr. Lederle that, while this resolution might seem to work a hardship on the afflicted members of the forces, it is, in reality, in the interest of both the sufferers and their comrades. In this day, he said, the one chance of recovery which is left to the patient is given to him, while others are protected from possible infection.

The Mosquito Extermination Conference.—What is described as "The First General Convention to Consider the Questions Involved in Mosquito Extermination" was held in the rooms of the Board of Trade and Transportation, New York City, on the afternoon of December 16. A temporary organization was effected by electing Mr. Robert W. De Forest, Tenement House Commissioner of New York, as President; Mr. Henry Clay Weeks, of Bayside, New York City, as Secretary, and Wm. J. Matheson, described as "the father of the movement on the North Shore, L. I.," as Treasurer. After an opening address by Mr. Weeks, a paper sent in by Prof. John B. Smith, State Entomologist of New Jersey, who is located at Rutgers College, New Brunswick, was read. The paper was on "How a State Appropriation May Be Used," and described the work done during the past season under the direction of Professor Smith, and by the aid of the first State appropriation for mosquito work ever made in this country. During the past summer seven men were kept in the field, distributed well over the State. A total of 33 species of mosquitoes were collected, and 31 of these were bred. One or two more species may yet be found, but it is thought that the mosquito fauna of the State has been pretty fully covered. A small sum of money was spent in experimental ditching for drainage. Professor Smith considered it legitimate for a State to make mosquito surveys and to give general advice, leaving to local communities the work of extermination. Money should first of all be spent in study, so as to avoid the loss of public confidence which would follow mistaken executive measures. Mr. Walter C. Kerr, President of Westinghouse, Church, Kerr & Co., told "What a Rural Community Can Do." The community was on Staten Island, and included an area of some two square miles, embracing both marsh land and upland. In 1898 subscriptions were secured and 25 ponds were covered with petroleum oil. Later the ponds were drained. The oiling was temporarily, but the drainage was permanently effective. The greatest difficulty met was such marsh lands as could not be drained. Plans to exclude sea water from these by tide gates were under consid-

eration when annexation to New York City checked the proposed municipal undertaking. Mr. Wm. N. Berkeley, M.D., of New York City, read a paper on "The Exactness of Proofs of Transmission of Malaria." Dr. E. Porter Felt, State Entomologist, Albany, N. Y., read a paper on "What New York State Ought to Do." He deemed it essential that practical work, particularly where undertaken on a large scale and when requiring many years' time, should be based on scientific principles. The needs in the vicinity of New York City are the greatest, for within a radius of 25 there are some 200 square miles of marsh land, about equally divided between New York and New Jersey. A biological survey of swamp and marsh areas, particularly near the large cities, is needed. The example of New Jersey might be followed and such work entered upon; perhaps in cooperation, so far as possible, with New Jersey. The problem could perhaps be studied sufficiently if there were available for four or five years an annual appropriation of \$3,000 to \$5,000. Mr. Weeks said mosquito extermination is essentially an engineering problem. Other features of the work are highly important, but the engineer may best determine and carry out plans to get rid of the breeding places, often involving the redemption of thousands of acres of marsh or saturated acres of vast value. Heretofore engineering has been for and not against the mosquito. Breeding places have almost universally been caused by engineering works. This applies to highway, railroad and landscape engineers. The result has often been the depopulation of valuable sections by malaria and its bearers, the *Anopheles*. The better term is "economic engineering," for the work covers a wide range besides simple extermination—the utilization of large areas for agriculture and even for habitation, and the improvement in living conditions of a vast population. During the conference a resolution was adopted providing for a committee of ten, to be named by the chair, to consider and report on permanent organization, the committee to have power to promote legislation, to arrange for the publication of the proceedings of the conference, and to call another conference whenever it should see fit.

A Highly Creditable Showing for New York.—The death rate for New York, says the *Sun*, for the last year, as calculated by the Health Department, is the lowest in the history of the records of mortality of this city. Up to the close of last week it was estimated at 18.15 in the 1,000 annually, as against 18.75 in 1902, and when the returns for the full year are in it is likely to be even less. Since 1890 there has been so great and steady a diminution in the percentage of mortality that it indicates a most creditable and most hopeful improvement in the health regulation, and also, and very significantly, in the cleansing of the streets. The death rate of Manhattan and The Bronx was as high as 26.31 in 1891. In 1898, taking in the whole city as now constituted, it had fallen to 20.26, in 1901 to 20, in 1902 to 18.74 and 1903 it has gone down to 18.15, according to the present calculation. New York, therefore, now takes its place among the healthiest cities of the world, yet in none other of them do the conditions unfavorable to health present a problem so difficult of treatment. Nowhere else is the crowding of population so great as in the densely populated districts of New York. In London, for example, only seven of the twenty-one subdivisions have more than 123 persons to the acre, while the thirty-four Assembly districts of Manhattan average

more than 131 persons. The densest London district, with 623 acres, contains only 200.6 persons to the acre. In New York the Eighth Assembly district contained in 1900 as many as 735.9 to the acre, and on 2,626 acres of the city there were more than 200 persons to the acre. About eight hundred thousand persons in New York are housed more densely than the 130,989 inhabitants of the most crowded London district. Moreover, the densest London district increased in population none at all or only slightly between 1891 and 1901, while the most congested part of New York, the lower East Side, increased its population between 1895 and 1900 at the rate of 10.6 per cent., and the most crowded district, the Eighth, by 6.7 per cent. This increase, too, has been going on steadily during the last three years. The densest London district has 11.5 persons to a dwelling, but in only two of the Assembly districts of Manhattan, the Twenty-fifth and the Twenty-seventh, is the average lower. Even in Brooklyn as a whole the average number of persons to a dwelling is nearly as large as in the most crowded dwellings of London. These facts suggest the vastly greater difficulty of the health problem in New York, and added to them is the volume of immigration steadily pouring into the most crowded districts here, while in London that stream is relatively insignificant. Here is a comparison of the present death rate of New York with that of the chief European cities in 1902: London, 17.7; Liverpool, 22.5; Paris, 18.4; Berlin, 18; Vienna, 19.4; St. Petersburg, 23; Rome, 20; New York, 18.15. Considering the peculiar social conditions in New York, this is a showing most creditable to our Health and Street-Cleaning Departments, and the more so because not many years since New York led the list with its high death rate.

PHILADELPHIA.

Result of Medical Examination.—At the recent winter meeting of the State Board of Medical Examiners but 57 out of 103 applicants were successful, the failures reaching 42.2 per cent. Four men were expelled for cheating and one withdrew. Members of the board stated that the large percentage of failures was due to the severe examination, which was made more difficult than ever before.

City Theaters to Be Inspected.—Because of the object lesson furnished by the recent Chicago disaster, Mayor Weaver has determined upon a thorough special inspection of all the places of public amusement in Philadelphia. For this purpose he has appointed a committee of seven persons, including the fire marshal, the chiefs of the Bureaus of Fire, Building Inspection and Electricity, two prominent builders, and a civil engineer. This committee will begin their work at once to ascertain in what respects the public safety demands immediate improvement upon existing conditions.

Hospital at Butler to Be Discontinued.—The "Philadelphia" hospital at Butler, Pa., is to be closed on January 15. This has been decided by the Citizen's Permanent Relief Committee on the recommendation of Dr. M. S. French who has been in charge of the work there. It is believed that the typhoid epidemic has been conquered and that the hospital will not be needed after the time mentioned. Dr. French spoke most highly of the work of the 25 nurses sent from this city at the beginning of the epidemic. A committee was appointed to prepare a testimonial to be given to the physicians and nurses on their return.

Coroner's Statistics.—The work of the coroner for 1903 exceeded that of any other year in the history of the office. The number of inquests was 3,357—553 more than last year. There were 58 homicides, 202 suicides, 94 deaths by drowning and 932 casualties. Among the latter were 254 on steam and electric railways.

Affiliated Scientific Societies.—The meeting in this city December 29 and 30 of the affiliated American Scientific Societies was a successful one in every way, social as well as from a strictly scientific standpoint. Smokers, luncheons and receptions were tendered the visiting members whenever the scientific program permitted. The meetings were held in the buildings of the University of Pennsylvania except the second day's meeting of the American Physiological Society, which was held in the physiological laboratory of Jefferson Medical College. The first annual meeting of the American Society of Vertebrate Paleontologists was held in Biological hall, it being decided to affiliate this with the other societies.

A Case of Rhinophyma.—An interesting case of this rather rare condition, in which operation was followed by remarkably good results, was reported at the Philadelphia Academy of Surgery, January 4, by Dr. W. W. Keen. The patient was a man of sixty-five years, a tailor by occupation. There was no history of injury. Fifteen years ago he had what was probably an attack of acne rosacea in which the nose and the adjacent borders of the cheeks were most prominently affected. This was followed by a nodular growth of the nose which involved all of that organ except the upper fourth. The growth gave rise to no pain. Breathing was not interfered with, but the projecting mass caused much difficulty in eating. Operation consisted in an elliptical incision with removal of the enclosed part followed by shaving of the growth on each side. Contrary to expectation there was but very little hemorrhage. The cosmetic result is very good, an interesting point being that over the area where the growth was simply shaved off there has been reproduced normal appearing skin instead of scar tissue. Histological study of the removed tissue showed it to be a soft fibroma of the skin with conspicuous distension and possibly hyperplasia of the sebaceous glands.

Pathological Society of Philadelphia.—The Annual Exhibition Meeting of the Philadelphia Pathological Society will be held on Thursday evening, January 14, 1904, at 8 P.M. at the Mutter Museum of the College of Physicians. This exhibition includes extensive gross and microscopic exhibits embracing every department of human and animal pathology. Members of the medical profession are invited to attend.

CHICAGO.

Detention Hospital.—The total number of patients admitted to this hospital during the year was 1,401 and 1,465 of these were taken to various institutions. They were distributed as follows: To Dunning, 809; Elgin, 142; Kankakee, 172; Watertown, 3; Bartonville, 1. Three hundred and nineteen patients were discharged, 19 died, and 1 escaped. Number of patients remaining at the Detention Hospital, 26. Total number of patients received at both the County and Detention Hospitals was 23,718.

Hospital Building.—The total cost of the new buildings and alterations in old buildings was \$199,932.99. Besides the hospital for contagious dis-

cases, at the County Hospital are the five cottages for tuberculosis patients and three new cottages for insane patients at Dunning. A Children's Hospital, to be built at the County Hospital and to cost about \$75,000, is planned for the coming year.

County Hospital.—Many changes and improvements have been made and are under way. A new heating plant has been erected, an X-ray department installed, and a new building for the isolation of contagious diseases is now in the course of construction. The following work was accomplished at the County Hospital during the year 1903: Number of patients treated, 22,227; discharged, 19,430; died, 1,996, and remaining in the hospital, 801. The sum of money expended for supplies, improvements and repairs, \$184,520.21. Expended for salaries, \$128,400.63, making the total cost of maintenance, \$312,920.84, with a daily cost of maintenance of \$857.31, or about \$1 a patient. Training school for nurses started and new rules have been adopted for the conducting of the institutions. New cottages for the insane and for consumptives are being constructed. Superintendent Podstata reports an average daily number of patients at the insane department of 1,750; poorhouse, 950; tuberculosis ward, 95. The annual appropriation of last year for supplies was \$215,000, and was practically used up; for salaries, \$141,000; \$6,800 of this appropriation was unexpended. During the year Dr. John R. Nealy resigned and was succeeded by Dr. Podstata.

Pneumonia.—The total 139 deaths from pneumonia are the highest for any December week on record. They form 27 per cent. of the total mortality from all causes, while the 49 deaths from consumption are less than one-tenth the total deaths of the week.

Investigation of Cities by State Board of Health.—The State Board of Health has just finished a sanitary investigation of 75 cities of Illinois, the public water supply of which has been subjected to a careful chemical and bacteriological analysis. The water has been pronounced good in the greater number of cities. In those in which there was evidence of contamination of the water supply, the Board has consulted with the local authorities in the endeavor to discover the cause of the pollution and to suggest a remedy. Sanitary officers of the Board have been sent to the majority of cities for the purpose of investigating unsanitary conditions, and to advise the local authorities as to the steps necessary to prevent an outbreak of disease.

Report of City Health Department for the Year 1903.—Commissioner Arthur R. Reynolds, in his report, says that of the principal cities of the country Chicago has the lowest death rate and spends the least for health purposes. These assertions are based on the latest official reports of the United States Census Office, and the United States Department of Labor. Figures show Chicago's death rate to be 4.7 per cent. lower than the average of 12 other cities.

GENERAL.

Butler's Typhoid Spreading Down the River.—The scourge of typhoid that has Butler, Pa., in its grasp is creeping slowly down the Ohio. Pittsburg's announcement that the number of cases there has increased is followed by the discovery in Wheeling, where typhoid is always prevalent, that new cases are maturing rather more rapidly than before.

German Consumption Cures.—The German Central Committee for Tuberculosis publishes some in-

teresting statistics concerning the results of the open-air treatment of consumptives. During the year 1902 12,187 tuberculous men and 4,302 tuberculous women were treated in open-air hospitals at the expense of the Imperial Workmen's Insurance Office. Of this number, 78 per cent. were so far healed that there is no prospect of the disease rendering them incapable of work. If those cases are deducted in which, after a fortnight's treatment, it was evident that no cure could be effected, the successful cases numbered 81 per cent. Figures published by the Imperial Statistical Office show that the death rate from tuberculosis in German towns of 15,000 and more inhabitants is steadily decreasing. The number per 10,000 who died of consumption in the five years ending in 1881 was 357.7; in 1886, 346.2; in 1891, 304.5; in 1896, 255.5, and in the five years ending 1901, 218.7.

Salicylic Acid Harmful.—The food tests at the Department of Agriculture, which have been going on for several months past, to test the effect of salicylic acid on human health, are reported to have brought out the general fact that salicylic acid seriously injures health.

Tropical Ulcer.—Dr. J. H. Wright, director of the pathological laboratory of the Massachusetts General Hospital, in this city, has announced the discovery that tropical ulcer, a peculiar skin affection common to tropical countries, is caused by a protozoon.

Millions for New Boston Hospital.—The will of the late Peter B. Brigham, of Boston, was sustained by a decision handed down by Justice Lebaron B. Colt, in the United States Circuit Court, on December 30, and the \$5,000,000 involved will go toward founding the Brigham Hospital according to the wishes of the testator. The heirs at law contested this provision.

OBITUARY.

Dr. HAMILTON A. WEST, of Galveston, Texas, died December 30, at the home of his brother, Dr. James N. West, 71 West Forty-ninth street, after a brief illness. Dr. West was Secretary of the Board of Health in Galveston during the flood there and performed valuable service in attending to the sufferers. For many years he was Secretary of the State Medical Society of Texas. Up to six weeks ago Dr. West was in active practice. He came to this city for treatment, but all efforts to save his life proved of no avail. Dr. West was born in Russell's Cave, Ky., March 31, 1859. He was a descendant of Samuel West, a brother of an ex-Governor of South Carolina. He was graduated with the highest honors of his class in Louisville, Ky., where he took his degree of M.D. As a physician Dr. West prominently identified himself with the interests of the City of Galveston. He was a professor in the University of Texas, and it was largely due to his efforts that the medical department of that university was founded. He made a special study of typhoid, yellow, and dengue fevers, and helped to point out the distinctions in diagnosis of the two latter. In 1897 Dr. West reported a case of yellow fever in Galveston and brought upon himself the censure of many citizens, who thought the announcement would injure the city. But Dr. West's diagnosis was confirmed by an expert, sent there by the Government. It was Dr. West's contention that such an announcement was for the good of the State of Texas, and he was in favor of quarantining the city lest the disease should spread and there should be an epidemic. Dr. West is survived by a widow and

five children. One of his sons is in business in Galveston and another is at Princeton.

Dr. ANTON EIDENBENZ, a surgeon, who had practised in this city for over fifty years, died December 31 at St. Luke's Hospital of pneumonia. He was eighty-six years old. Dr. Eidenbenz was born in Hessel-Darmstadt, Germany. He was a surgeon in the Eleventh New York Regiment during the Civil War, and after his return from the army was for many years visiting surgeon of St. Luke's Hospital.

Dr. SILAS J. DAMON, a wealthy physician, formerly of Boston and Lowell, Mass., died last week at Bridgeport, Conn., aged fifty-eight years.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Own Special Correspondent.)

LONDON, December 12.

TROPICAL MEDICINE—CANCER RESEARCH—THE SECRETARYSHIP OF THE ROYAL SOCIETY—THE ANTIVIVISECTIONIST LIBEL ACTION.

THE most notable event of the present week in our little world of medicine here is an address delivered by Sir Patrick Manson at the London School of Tropical Medicine. The occasion was a send-off to the Dean of the School, Sir Francis Lovell, an old medical officer of the Colonial Service, who, two or three years ago, made a very successful begging tour in the tropical regions of the British Empire, and who is about to start on a second mission with the same object. As the fruits of his first expedition he brought back \$100,000. The School, which, within the last few months has been greatly enlarged, is now in debt to the amount of \$50,000, and like the daughter of the horse leech it still cries "Give, Give." Manson, to whose impulse the institution of special teaching in tropical diseases is mainly due, recited the claims which the London School had already established on the support of the public. Since the School was opened in October, 1899, it has trained some 350 students, that is, graduates of medicine, who go there for special instruction in tropical disease. The number is steadily increasing, showing that the School fulfills a necessary function. In its wards and laboratories students have the opportunity of getting into actual touch with the raw material of tropical disease, the germs which cause them, and the pathological effects of those germs on the human body. Besides being competent to deal with the diseases they meet with in the tropics they are trained in the methods of research so that they are able to grapple with the pathological problems which they have an opportunity of studying. In this way a whole army of eager investigators has arisen within the last five or six years who are throwing light on the dark places of tropical pathology. Sir Patrick Manson went on to mention some of the most important discoveries made by workers in the School. Dr. Low, the present Superintendent, first proved in the laboratory of the School how the blood worm, which is the cause of a group of diseases of the elephantiasis type, gains access to the human body. He showed that at an early stage of its existence the worm is introduced, like the germ of malaria, by the proboscis of the mosquito—a discovery which indicates the means of preventing these diseases. Dr. Forde, a pupil of the School, discovered in the Gambia Colony the presence in the blood of man of a new parasite which was afterward recognized by Dr. Dutton of Liverpool as belonging to the *Trypanosomes*, a group of parasites re-

sponsible for many grave diseases in the lower animals. Dr. Aldo Castellani, another pupil of the School, demonstrated the association of the *Trypanosoma* with sleeping sickness. Only a fortnight before the date of the address had the final proof that the *Trypanosoma* was the cause of sleeping sickness been obtained. Last year a patient in whose blood it was conjectured that the parasite was present was admitted to the hospital attached to the School. Dr. Daniels, after long search, succeeded in finding the *Trypanosoma*. The patient left the hospital, but specimens of her blood were sent from time to time to the laboratory for examination. In October she developed symptoms of sleeping sickness, of which she died on November 25, two years and three months after receiving the infection through the bite of a species of tsetse fly, common in the place on the Upper Congo, where she had resided. Sleeping sickness is rapidly spreading not only in the Congo Free State, but in Uganda and elsewhere in Africa. Manson is confident that the discovery of its cause will lead to the discovery of means for its prevention. Manson held that the school from which these discoveries had come had more than justified its existence. A sum of \$500,000 is needed to further the work of research, and he earnestly appealed to the public for the money on a frankly utilitarian basis; for any one of the discoveries mentioned, he said, was worth the sum named ten times over.

It remains to be seen whether the School will get the money. It is certainly doing splendid work and, thanks largely to the support which it received from the late "pushful" Secretary of State for the Colonies, Mr. Chamberlain, its light has not been hidden under a bushel. Thanks to the liberality of Sir Alfred Jones, the Liverpool School has plenty of money, but it has no pupils. Still it has done useful work by sending out expeditions to West Africa and elsewhere. What the London School wants is a "pious founder" as free-handed as Jones, but it is doubtful whether it will find one who like him sees in the patronage of scientific research a means of furthering commercial enterprise.

Another subject on which research is very active here at present is cancer. The parasitic theory which almost held the field some time ago is now falling into the background. Mr. Henry Morris, who is Senior Surgeon to the Middlesex Hospital, where opportunities of studying the disease in all its varieties are especially abundant, in a lecture delivered at the Royal College of Surgeons on December 9, declared that up to the present time the microbic theory had not advanced our knowledge of the cause of cancer one step. The truth is, he added, that for the last ten or fifteen years cancer research has been too exclusively directed to microbes and too little to cancer. He expressed a strong opinion in favor of Cohnheim's "tumor germ" theory, which he believes to be the most—indeed the only—probably correct theory of the origin of cancer, and the only hypothesis that explains all the known facts. This theory so far from justifying pessimistic views as to radical treatment or prevention, in Morris' opinion, warrants the hope of a positive cure being effected if the disease is removed quite early and completely. I understand that Dr. Bashford, the Director of the laboratories of the Cancer Research Fund, while keeping an open mind on the subject, also believes that the weight of evidence, as matters stand at present, is against the parasitic theory. In a paper read before the Royal Society by Messrs. Farmer, Moore and Walker, on December 10, a theory, based on the study of a number of fresh specimens, was put forward that the distinctive pathological feature is a special mode of cell division. If they are right, the old "cancer cell," which we used to be taught to regard as a myth, turns

out to be a solid fact. None of the three observers is a member of the medical profession, two of them are zoologists, while the third is a botanist, and they seem to have attacked the problem purely from the biological point of view. If Ray Lankester is right, this fact makes it all the more likely that they have hit on the truth. That eminent zoologist has often expressed his contempt for the mere pathologist, holding that in biology lies the key to the origin of disease. As a proof, he points to the brilliant work of Metchnikoff, who began his scientific career as a zoologist.

The mention of the Royal Society reminds one of what Sir Lucius O'Trigger would have called "a very pretty quarrel," which has been raging among the august beings who manage its affairs. Sir Michael Foster, who recently resigned his chair of physiology in the University of Cambridge, has since given up the post of Secretary to the Royal Society which he has held for many years. The position is one which gives the holder a very large measure of power in the British scientific world, for he is virtually the irresponsible arbiter of the fate of young scientific workers. He can push a man on, indefinitely retard the recognition of his work, or suppress him altogether. In the discharge of such a trust the Secretary of the Royal Society is naturally exposed to much criticism. Being human, he is likely to give effect to personal preferences or prejudices. The position of Secretary has for very many years been held by a representative of scientific medicine, and it was hoped that on Foster's resignation the succession would fall to Dr. Halliburton, Professor of Physiology in King's College, London, one of the foremost of the younger generation of scientific workers here. A circular was issued by many prominent Fellows of the Society in which it was pointed out that "The nature of the science to which he (Halliburton) has particularly applied himself, physiology, places him, as it did both the retiring secretary and his distinguished predecessors, Sharpey and Huxley, at a nodal point for the sciences of the biological group, to which the collateral studies of pathology and medicine are attached." They went on to say that it seems highly advisable "that for the secretaryship there should, on the present occasion, be chosen a Fellow specially cognizant of the great biological field comprised under medical science." Owing, however, it is said to the opposition of Foster, Halliburton was put aside and the choice of the governing body of the Society has fallen on the veteran geologist, Sir Archibald Geikie. The choice of the President and Council, as Count Smol'tork said to Mr. Pickwick, "surprise by himself," but the fact that Geikie should have accepted the post is still more amazing. He is seventy years of age; whatever ambitions he may have cherished in early life have been amply satisfied and he has practically retired from the field of scientific work. The spectacle of such a man accepting a post which taxes all the energy of a man in the prime of life makes one ask *Que diable est-il aller faire dans cette galère?* One hears whispers of jealousy of the representatives of medical science in the heavenly souls of the Council of the Royal Society. It is possible, however, that the explanation of their choice of an old man is a compromise like that which is known to have not infrequently made conflicting parties in the Sacred College agree to place in the chair of St. Peter an old man who should fill it long enough to give them the chance of strengthening their forces for a fresh fight.

The verdict in the action recently brought by Dr. Bayliss, one of the professors of physiology in University College, London, for slander against Mr. Stephen Coleridge, Honorary Secretary of the National Antivivisection Society, has given great satisfaction not only

to the medical profession, but to level-headed men of all classes. The press, with the exception of one or two unimportant papers, has strongly condemned Mr. Coleridge's methods. His charges were shown in court to be based on nothing more solid than the statements of two ladies, who, on inquiry, turned out to be the Secretaries of a Swedish Antivivisection Society. Yet these ladies, who had attended Dr. Bayliss' class, not as students, but as spies, and who had described what they fancied they saw, or wished to see, in a book which the Lord Chief Justice who tried the case characterized as "hysterical," were put forward by Mr. Coleridge, as independent witnesses. Their cross examination seriously damaged his case, and it was utterly ruined by his own evidence. This, which was reluctantly and evasively given, showed that he had accepted the statements of the Swedish ladies without taking the trouble to test them in any way whatever. He practically said that he would not believe a vivisectioner on oath, and he treated the reports of the Government inspectors and the statements of the Home Secretary in the House of Commons in the like cavalier fashion. Yet, when a statement appears that the damages and costs of the trial, amounting to some \$22,500, are to be defrayed by the Society which he represents, his solicitor gravely writes to the papers to say that the balance sheet to be published in the annual report will show that none of the funds have been used for the purpose. Apparently, therefore, Mr. Coleridge while refusing to accept statements of responsible officials and Ministers of State which do not suit his purpose, expects that the reports of his Society will be accepted as gospel truth. The trial will not stop the fanatical agitation of the antivivisectionists, but it may be hoped that it has taught them the salutary lesson that they must use a certain measure of discretion in their systematic lying.

LEUCOCYTOSIS IN APPENDICITIS.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Allow me to make a most respectful but earnest criticism of the discussion on appendicitis, reported in your issue of Dec. 26, 1903, with particular reference to the remarks of Dr. George Brewer on leucocytosis. Dr. Brewer is certainly right in stating the fact that there is general disappointment regarding the results of blood examinations in appendix cases. But this disappointment is due to an attitude on the part of the profession, and, especially, of operators, which is not justified when we consider that leucocytosis is not an essential part of the septic process, but a reaction on the part of certain cells of the body. The great trouble is that we are always looking for pathognomonic signs and specific drugs, although we ought to realize that this quest is not much more reasonable than that of Ponce de Leon. Like Ponce de Leon, too, we fail to realize the value of what we discover, unless it fulfills our desire for the miraculous.

Leucocytosis is like accelerated pulse, high temperature, albuminuria, etc., of little value as pathognomonic evidence of anything and sometimes wanting when we think it ought to be present. I once had a consolidated pulmonary lobe without a particle of fever and one of my patients has recently manifested a pleuritic friction sound and other evidences of pleurisy, without rise of temperature, but I have not yet thrown away my thermometer.

The practical diagnostic point in appendicitis (why not say *scolecitis*?) is as to the necessity of operating, and operation in acute cases is indicated by two radically different processes, sepsis and necrosis. Either may

lead indirectly to the other, but they are, and in a rather literal sense, as different as life and death. Gangrene will not produce leucocytosis and sepsis will not if the resisting powers are too low. If we analyze this latter statement, it proves to be the crudest kind of a truism; if the body lacks reactive power, it will not react. But, in the great majority of cases, we can depend upon leucocytosis or its absence to indicate or contraindicate operation. Of course, the case should be studied carefully by a medical expert, not simply by a pathologist or an operator; and with regard to pulse, temperature, urine, local signs and general symptoms.

It seems that the reporter must have misunderstood Dr. Brewer in saying, "Very recently he has found that the differential leucocyte count seems to give important information. . . . the polynuclear leucocytes are increased much more than in their due proportion. Usually the polynuclears number about 62 per cent. of all the leucocytes. When over 70 per cent. . . . are present the surgeon may look for abundant pus formation." I have personally paid attention to this point for at least three years and it was not original or even unknown among hematologists at that time. But 70 per cent. of multinuclear (not polynuclear) cells are within normal limits, and no definite percentage can be assigned to supuration. For instance, in normal blood we have about 5,000 to 8,000 leucocytes per cubic mm. Of these, $\frac{1}{2}$ to 3 per cent. will be eosinophiles, 20 to 25 per cent. lymphocytes, and the remainder, about 75 per cent., will be multiformenuclears or polymorphokaryotic cells. (Let us use either Latin or Greek, but not both in the same word.) If the so-called transition cells are excluded from the polymorphic cells, the percentage will be somewhat less, as Dr. Brewer states. As I understand it, any increase in leucocytes is on account of reaction to sepsis, consists almost entirely of polymorphokaryotic cells. Thus, the percentage will increase according to ordinary arithmetic rules for mixture. For practical purposes, a leucocytosis that has to be counted to be appreciated, is not of great value, although an accurate series of counts showing significant increase or decrease, is of diagnostic and prognostic importance.

It would require too much time to go into the discussion of the relative merits of medical and surgical treatment. Suffice it to say that any such discussion implies the belief that promiscuous operation for symptoms pointing to some disturbance in the appendix is as illogical as similar recourse to surgery in other parts of the body.

Very truly yours,
A. L. BENEDICT.

SPECIAL ARTICLE.

BYWAYS OF MEDICAL LITERATURE.—XIX.

NON-EXERCISE AND LOSS OF FUNCTION.

In an article on Indifferentism in a recent number of the *Atlantic Monthly*, the editor, Mr. Bliss Perry, insists on the dangers of overspecialization with the consequent possibility of the loss through failure of function of a number of important intellectual faculties that would otherwise be a source of pleasure and perhaps even of profit. It is easy to understand after all that for lack of exercise many tastes and intellectual operations that would be at least important stimulating means of recreation, are lost through too close application to a few things. There are those who find in the present elective system of education this very danger. From his earliest serious years the student applies himself to something that he hopes will be of practical service to him later in life. His college course is only an introduction to his professional studies and

gradually all his intellectual life comes to center around the narrow circle of his vocation in life. It is a warning to the young man commencing his studies, to the young physician entering upon his practical career and to the old physician who is often given the opportunity to advise others to realize the force of the example in this matter quoted by Mr. Perry:

"Here is a well-known passage from the autobiography of one of the most gentle, honest and unquestionably great men of our own day. It is the passage where Charles Darwin confesses his loss of interest in certain things which had once moved him deeply. The words are frequently commented upon as illustrating the atrophy of unused faculties. That is indeed their obvious purport, but as you read them, note how perfectly they echo, more than a century afterward the very tones of Signor Pococurante's confession in his library:

"I have said that in one respect my mind has changed during the last twenty or thirty years. Up to the age of thirty, or beyond it, poetry of many kinds, such as the works of Milton, Gray, Byron, Wordsworth, Coleridge, and Shelley, gave me great pleasure, and even as a schoolboy I took great delight in Shakespeare, especially in the historical plays. I have also said that formerly pictures gave me considerable, and music very great delight. But now for many years I cannot endure to read a line of poetry. I have tried lately to read Shakespeare, and found it so intolerably dull that it nauseated me. I have also almost lost my taste for pictures or music. Music generally sets me thinking too energetically on what I have been at work on, instead of giving me pleasure. I retain some taste for fine scenery, but it does not cause me the exquisite delight which it formerly did. . . .

"This curious and lamentable loss of the higher esthetic tastes is all the odder, as books on history, biography, and travels (independently of any scientific facts which they may contain), and essays on all sorts of subjects interest me as much as they ever did. My mind seems to have become a kind of machine for grinding general laws out of large collections of facts, but why this should have caused the atrophy of that part of the brain alone, on which the higher tastes depend, I cannot conceive. A man with a mind more highly organized or better constituted than mine would not, I suppose, have thus suffered; and if I had to live my life again, I would have made a rule to read some poetry and listen to some music at least once every week; for perhaps the parts of my brain now atrophied would thus have been kept active through use. The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature."

It is manifest that such atrophy of interests is not only a positive loss to the individual but is almost sure to impair the full significance of his life-work, since it narrows his point of view and makes him incapable of appreciating with entire correctness even his own chosen lines of thought. The only prophylaxis against this narrowing of intellect is a broad liberal education in the impressionable developmental period when the mind is susceptible to the acquisition of new interests and when these are likely to be permanent possessions if the habits they initiate become sufficiently part of the organism.

ANATOMY AND DISPOSITION.

In the course of some editorial discussion of that very interesting question: Shall the promise to obey on the part of the bride be omitted from the marriage

service? one of the religious weeklies, published in New York, gives the details of the change that has come over the meaning of the word *buxom* in the last couple of centuries. Some of the old marriage services have the expression and the woman shall be *buxom* to her husband; that is, shall be bowsome, in which the root to bow is obvious and the sense of obsequious, obedient, is clear. The nearest relative in a modern language is perhaps the German *biegsam*—flexible.

At the present time, however, *buxom* has come exclusively to have the meaning of vigorous, robust, with an added kind of largeness, breadth, sturdiness of body, and then the sense of cheerfulness, good temper. It is evident that somehow the realization has come into the mind of English humanity at least, that largeness of body is associated with submissiveness of disposition, that the woman ready to obey is more apt to be generous of proportion than otherwise. Hence has come the modern and now practically exclusive meaning of the word *buxom*. The change thus brought about enshrines the expression of the principle that Antony enunciates when he insists on his distrust of the lean and hungry Cassius in Shakespeare's *Julius Caesar*. This tendency for students of human nature to find in the anatomical constitution an expression of the inner character is of course common at all times. It would be interesting to know whether the impressions thus conveyed are borne out by statistics. At the present time such words as *ascetic* are coming to have a physical rather than a spiritual sense, as if the influence of body on mind were more generally recognized than hitherto. The book recently written, "Why the Mind has a Body" is an exemplification at length of this newer state of feeling in these matters.

IBSEN AS A MENTAL NOSOLOGIST.

Those who are interested in Ibsen have been given an opportunity in New York and neighboring cities to see another excellent example of his supreme power of putting a disease entity upon the stage. Of course it may be doubted how far the study of diseased conditions and their representation in dramatic form are a true subject for artistic effort, but then, as has been very clearly established by Kipling in his poem on the subject, it's clever and so forth, but is it art? This is a question that may be asked of many other things besides Ibsen's dramas. The latest production here in America, *Hedda Gabler*, is after all the simple straightforward story of a pregnancy psychosis. The heroine (save the mark)—let us say instead the principal female character—is an intensely selfish young woman before her marriage and all her selfishness and other undesirable qualities become intensified during the course of her pregnancy shortly after marriage.

Such a train of incidents, of course, is not an unusual occurrence in ordinary life. There is many a husband who dreads the recurrence of pregnancy because during its course life is so often made unbearable for him by the irritative nervous condition which develops in his wife. Of course, an opposite effect as the result of which the wife becomes especially solicitous and tender in her husband's regard during pregnancy is (the Lord be thanked), perhaps, even more frequent than the opposite condition, while the characters of most women are left practically unchanged.

Ibsen has taken an extreme example of the young woman eminently unlovable because of the self-centered concentration of her thoughts on herself at all times and has represented her character becoming absolutely malignant in its hatefulness under the influence of the pregnancy psychosis. As a result of this she tempts the man who has broken with the drink

habit to return to liquor, and having obtained possession of the book that he wrote and which would probably serve to make his fame she deliberately burns it. Having brought disgrace upon him she provides him with the means of suicide and suggests it. He unfortunately, according to her idea, does not commit suicide in the esthetic manner in which she planned it for him, she proceeds to take her own life.

Needless to say these materials can be used in a very impressive and dramatic fashion. It is clearly, however, neither a study in manners nor in morals, but a study in neurology and nervous pathology. It seems too bad that the pitiful condition which develops in the young mother's mental state and which brings about all the extremity of the horrible denouements should be put upon the stage as if somehow it were a natural development out of a given environment. This is the fault with all of Ibsen's work that he deliberately selects some type of mental disease and puts it upon the stage. A century and a half ago it was the custom for London society people with nothing to do to go out to Bedlam, the insane asylum of the city and find amusement in watching the antics of the insane people. The idea of doing such a thing would be eminently repugnant to the present generation. As a matter of fact, however, the craving to see the plays that Ibsen writes is rooted in the same morbid new sensation-loving feeling which made the Londoners laugh at their insane. It has been pointed out some time ago that Ibsen's *Ghosts* is practically a study of paresis. Others of his dramas illustrate other phases of mental alienation. If the diseased condition were, as is the case with the introduction of Ophelia into *Hamlet*, only an incident in the course of the development of the plot then it might well find a place, since mental disease has a definite though very subsidiary place in actual life. But when the whole drama turns on the repugnant though wonderfully naturalistic description, it must be confessed of a type of nervous disease and nothing else, there can be no question of great art, since there is a pandering to the morbid side of human nature in order to produce effects and secure applause and interest by the very horror aroused.

A PHYSICIAN POET.

The present renewed interest in Gaelic literature has called attention once more to the career of a distinguished physician-poet very well known in Boston some twenty years ago and admired by all those who came in contact with him. One of the most interesting remnants of the old Gaelic literature is the story of *Deirdre*. *Deirdre* is the fair-haired Helen, of Irish mythical lore, the Princess of Ulster, on whose account it was prophesied before her birth by the old Druids that more blood would be shed than ever was shed in the land since the race began. "She will be fair, comely bright haired," as Lady Gregory put it in her recent version of *Cuchulain* "heroes will fight for her and kings go seeking her." "You will have a little grave apart to yourself; you will be a tale of wonder forever, *Deirdre*."

It was on this subject that Dr. Robert Dwyer Joyce, wrote his widely read poem of *Deirdre*, which was published by Roberts Brothers, of Boston, in their *No Name Series* in 1877, producing quite a literary sensation in the Boston of those days, as well as in other literary circles throughout the country. After the success of his poem had been widely proclaimed the author disclosed his identity. He was a practising physician of Boston and came of an ancient and distinguished Irish family. He had graduated as a physician at Trinity College, Dublin, and had practised for several

years in Cork before coming to this country in the early seventies.

A friend, Mr. Ormonde M. Reid, once asked him where he got the time in his busy professional life to write such a poem. He said that he had composed it on the street, in his study, anywhere and everywhere when his mind was not occupied with his profession.

Unfortunately only a few years after the publication of this poem his health gave way, the underlying condition in his illness evidently being tuberculosis, he returned to Ireland where, however, he did not long survive.

At the time of his death, the Boston papers published very flattering obituary notices and many of the magazines gave critical reviews of his literary work. It seems especially fortunate that the Gaelic movement has revived interest in the career and work of a man whose literary ability succeeded in making a place for him in English literature, even in the midst of the busy work which he had to accomplish in order to succeed in the task, ungrateful though it may be, yet absolutely necessary of doing, what John Hunter termed, "chasing the damned guinea."

NEUROSES IN FICTION.

Our modern fiction and playwriting has become so expressive of phases of neurotic feeling rather than of genuine traits of normal humanity, that even the literary critics are beginning to recognize that the neurosis is fashionable in fiction and that only those who are so morbidly introspective as to exhibit phases of feeling that are sedulously concealed, are commanding popular attention. In an article on Neurotic Symptoms in Recent Fiction, in the winter book number of the *Independent* of New York (Nov. 19, 1903), Mrs. L. H. Harris inveighs against this unfortunate tendency in our literature. She insists that sanity is the thing most to be desired. Sanity and a little dulness, for after all it is only the dull people who are quite sane. They do not know too much, and they do not feel too much, but they are safe. Their wits are not very keen, nor their spiritual altitudes very high, but they have an ethical quality that insures moral equilibrium. It is not good to be able to thank the Lord that we are not as other men, for the average of mankind is nearest to mental balance in present conditions when "half the world is off and the other half not quite on."

"In the first place, it will be observed that in novels of this class the neurotic condition is generally founded upon the sex element. Only a few authors venture to include the religious interest in this hectic demonstration of human passions. As a rule, a sickly yearning for the 'unutterable' takes the place of action and healthy aspiration in these books. In 'The Story of Mary McLane' we have an indecent exposure of an erotic temperament. Such types have always existed, of course; but the question is by what influence was the intelligence made to seize upon these secrets of a depraved nature and interpret them aloud? What is it in American life that gives courage for such a performance? We have too much enterprise in sensations. And in these feverish times we have made too free a use of our wits in the lower regions of existence, so that we are becoming too well informed as to what lies in our darkness. Formerly there was a simplicity in vice, an objectivity that evidenced and defined it, but this extension of mind into the nervous centers of passion has given a neurotic genius to its very weakness. It has added an accusation to consciousness and discovered to every reader of fiction the psychic regions of a new kind of criminality."

Mrs. Harris points out that Southern writers from

whom, according to temperament, most divagations in this matter might have been expected, are freest from them, showing that they are deliberate. She continues "And this is not inconsiderable praise when we reflect that in the North, East and West, wherever wit has been sharpened most by science, energy quickened by competitive ambitions, and intelligence deepened by study and meditation, we find a certain genius for revelation, a disposition to expose everything, from commercial facts to the nervous nakedness of the secret mind. Sexual perversity becomes philosophical and fascinating through a neurotic power of portrayal. Indeed, our scriptures of life are too much concerned with the underworld of passions, and our gospels are too much of wickedness—all of which is unfortunate when we remember how young we are, and how long we must hold out against the mania and wretchedness of that darkness which is before and behind us in prophecy and history."

There is no doubt that many morbid conditions are suggestively being emphasized, exaggerated and rendered inveterate by these pictures of pathological mental peculiarities. Just as the physical hypochondriac finds new symptoms in every medical discussion so the mentally disequibrated find new fads in each problem novel that touch on all their own alienate ways.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF GENITO-URINARY SURGERY.

Stated Meeting, held November 18, 1903.

The President, John Van der Poel, M.D., in the Chair.

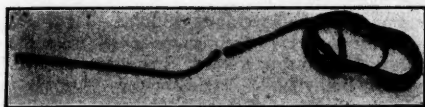
Instrument for Illumination of the Bladder.—Dr. F. Tilden Brown presented a useful instrument* (Fig. 1) for illuminating the bladder during suprapubic work. An electric light is passed through the urethra and controlled by an assistant, the cold lamp illumination being at the internal urethral orifice, thus having it most centrally placed as well as conserving room for the operative field. It could also be tucked in pockets within or about the bladder when passed through the suprapubic opening. The electric cord is to be sterilized by formaldehyde vapor and the metal part by boiling. In doing suprapubic prostatectomy, instead of working in the dark and by touch alone, this instrument† permitted one to see bleeding vessels which could be caught by forceps and subjected to torsion or ligation, thus the aspect of any such operation in the bladder is very materially changed. He also showed an arrangement of two specially right-angled catheters (Fig. 2) for suprapubic drainage; one leads from the bladder through the urethra, the other through the wound. These are fastened together at their lateral eyes before the operation, the one known as Carleton's catheter has its short arm of $3\frac{1}{2}$ inches, a very suitable average length for the intravesical portion of a suprapubic drain. While Dr. Brown's catheter for the urethra has its short arm of three-quarters of an inch. Both have lateral, as well as terminal eyes. His scheme in using these conjoined catheters for suprapubic drainage, is, after the operation, but before partial closure of the suprapubic wound, to draw the distal end of the urethral catheter in retro-

* Before having this simpler illuminator made he had used for the same purpose the sheath of his composite cystoscope through which also the preliminary irrigation can be done as well as the air distention of the bladder to lift the peritoneum just before opening the former.

† The author's torsion forceps, devised for vessels inaccessible to ligation. The corrugated button facilitates rapid twirling while maintained in the original axis.

grade fashion from the bladder outward, then sometimes putting a safety pin through its wall just at the external meatus; while the method of removal after the suprapubic wound had all but closed is to take the safety pin

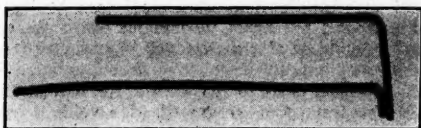
Fig. 1.



F. Tilden Brown's Intravesical Lamp for Suprapubic Operations.

from the urethral catheter and draw upon the suprapubic catheter, bringing its lateral eye close to the mucosa; then inserting a pair of blunt pointed, but delicate, scissors, first using as a probe to feel the connecting thread before opening them to cut it. For a few days longer,

Fig. 2.

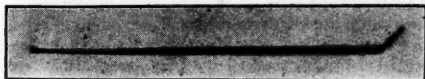


F. Tilden Brown's Arrangement of Catheters for Conjoined Urethral and Suprapubic Drainage of the Bladder.

until closure of the wound, the urethral catheter is advantageously kept in place to prevent suprapubic leakage.

Dr. F. Tilden Brown said it was very important to avoid any operation solely upon the tuberculous bladder when one kidney or both were similarly diseased. He

Fig. 3.



F. Tilden Brown's Small, Sharp Curette for Ureter and Bladder.

believed it to be a waste of effort, and only harm could result when we gave the bladder an additional outlet while this viscus was mainly suffering from being fed with infected material from one or the other kidney. In answer to Dr. Le Fevre, Dr. Brown said that so far

Fig. 4.



F. Tilden Brown's Torsion Forceps.

as could be determined by a most careful examination in the case of the nephrectomy patient shown there were no other foci in the body. With regard to suprapubic cystotomy for tuberculous bladder lesions he said that

the frequency with which permanent fistulae followed these operations was due many times to carelessness in not anticipating the various conditions and possible complications. Consequently in not making proper provision by having at hand before the operation was begun the means to treat any such lesions actively and thoroughly either with the small sharp curette, galvano cautery, strong nitrate of silver solution or other known therapeutic measures, and then to close the bladder wound in layers providing only for a little drainage in the prevesical space. The unnecessary employment of water for distending the bladder previous to its opening was often responsible for pericystic infections. He believed it to be a fallacy to leave the suprapubic wound to take care of itself, to heal or remain open with the chance of becoming a source of great discomfort to the patient. In addition he believed the surgeon should be previously posted as to just what he was going to encounter by making a preliminary cystoscopic examination and then lay his plans for the sort of attack required as well as for the most appropriate subsequent drainage; this latter may be met by a somewhat continuous urethral drainage by retained catheter, or possibly perineal or vaginal. While in cases of advanced and extensive tuberculosis of the urinary tract with contracted bladder every care should be taken to maintain a most comfortable and permanent suprapubic drainage until the end. Large stiff tubes should be avoided. Dr. Brown said that two months ago he had occasion to remove a testicle which, from the physical signs, situation and clinical history, led him to presume it to be of cancerous nature. After removal and cutting into it he was still inclined to think the diagnosis correct. The pathologist reported, however, that it was tuberculous and involved the testis and not the epididymis.

Dr. John Van der Poel said he could vouch for the usefulness and practicability of the electric light shown by Dr. Brown, as it had been his good fortune to have used it in a bladder operation, when it gave a most excellent view of all parts of that organ, without in the slightest encroaching upon the space necessary for the operator. It seemed to fill a long felt want, and was much to be preferred to reflection from an electric light on the forehead.

Case of Nephrectomy for Renal Tuberculosis.—In connection with a short paper to follow, Dr. F. Tilden Brown showed a male patient, thirty-eight-years of age, who, six years ago, came under his care suffering from frequent urination and severe right loin pains. The discomfort was so great that he was willing to have anything done for his relief. An examination of the urine showed the presence of tubercle bacilli, although scanty in number, and a turbid urine. It was necessary to learn positively which kidney was at fault if either, and to find out the condition of the other gland; therefore, the ureters were catheterized and the left kidney was found to be functioning normally, but the right was not, and its urine contained tubercle bacilli and leucocytes. Nephrectomy was advised and done at the Presbyterian Hospital when this quite unusual kidney* presented, where, instead of the ordinary necrotic or caseating foci, the surface revealed the appearances commonly seen in rather recent miliary tuberculosis and the interior was much of the same character. In addition there was a single cyst of walnut size at the lower pole. The patient was very stout and had had a previous operation performed for appendicitis some years before, which had left him with a somewhat protruding cicatrix at the place where an oblique lumbar incision would run into it. Hoping to avoid any hernial increase of this,

* Depicted in Reference Handbook of the Medical Sciences, Vol. 5, page 346.

as well as the bound down parietal peritoneum in the old scar, Dr. Brown made a vertical-longitudinal incision connected with a right-angled subcostal one; this enabled him to get at the kidney on stripping the parietal peritoneum forward. The kidney was removed with about an inch of the ureter; on account of the full abdomen and its thick walls, it was necessary to make a very generous incision. The patient has since been wholly free from pain, as well as evidences of urinary or other regional tuberculosis, so far as any demonstration of tubercle bacilli was concerned. Inoculations of the very scanty urine sediment in guinea-pigs had been carried on with negative results. It was interesting to note that the patient still has pollakiuria, not so marked as before, but yet unduly frequent, and this has been the main reason for the vain search for tubercle bacilli emanating perhaps from other parts of the tract. But no suspicion of a tuberculous focus can be raised, unless a very small but sensitive nodule in the prostate is of this nature. Therefore, it was concluded that his frequency in urination was the result of habit and also a somewhat previously contracted bladder, which is so often co-existent in this disease. At different times during the past six years, for short periods, he has been placed under dilatation treatment by intravesical irrigation with beneficial results. He is again under such treatment, and during a period of three weeks his vesical capacity has increased from two to six ounces, and his urinating intervals have proportionately increased.

Chronic Orchitis with Tuberculous Infection Simulating Sarcoma.—This was the title of Dr. John F. Erdmann's paper. This specimen was the right testicle removed from a physician about thirty-two years of age, who was seen on the third day of May of 1903. He stated that in 1899 while a student, taking notes, that in crossing the left thigh over the right he felt a sharp pain in the right testis as a result. That a slight epididymitis followed, but that later on the whole testicle swelled. This was about two months after the original injury. For the past year he noticed that it increased to about twice the normal size; that in the last six months it had begun to grow rapidly, having doubled its size of six months before. He had absolutely no specific, tuberculous or malignant history; never had had a gonorrhea. In the examination the testicle was found to be the size of a large goose egg, perfectly symmetrical, hard, no pain, sensitive only upon deep pressure. Examination of prostate and cord showed no enlargement, neither did the inguinal glands. The patient was placed upon anti-syphilitic treatment for a time; iodide of potassium as high as 300 grains a day, with no effect. Excision of the testis advised on the ground that it was a sarcoma. This was done August 30. High excision of the cord was done. Careful examination clinically of the vas showed no invasion. When shown to the pathologist he immediately stated sarcoma, and was astounded at the result shown by microscopical section. It was then proven to be a tuberculous invasion of a general orchitis. The patient has been seen since, showing no secondary manifestations on the opposite side, nor has he at any time had any tuberculous manifestations.

Dr. F. Tilden Brown said that two months ago he had occasion to remove a testicle which, from the clinical history, led him to presume it to be of cancerous nature. After removing it and cutting into it he was still inclined to think the diagnosis correct. The pathologist reported, however, that it was tuberculous, and involved the testis and not the epididymis.

Dr. Eugene Fuller said he had a case some time ago that was apparently like the one reported by Dr. Erdmann. The testicle on section seemed to be studded with tuberculous foci and there were masses which

looked like broken-down cheesy areas. The organ was quite large. Section of it was made and sent to the pathologist, but he reported it to be a sarcoma. Six months after this the patient again appeared with a sarcomatous liver. In this instance he said the patient had sarcoma when it was believed, on clinical inspection, to be tuberculosis.

Specimen of a Tuberculous Kidney.—Dr. F. Tilden Brown presented this specimen removed from the left side of a man aged thirty years. The diagnosis had been made by finding tubercle bacilli in the voluntary urine, and the localization of the disease then effected by ureteral catheterization. The patient was advised to take a period of rest, a change of air, etc., during the summer months. He returned from the woods for operation in October, having gained twelve pounds, and with less severe loin pain. Nephrectomy was simple and typical in all respects, except that the pedicle was exceedingly short, which made the operation unusually difficult. Although the preliminary exposure of the organ was a generous one, traction upon the areolar tissue and flaps with retractors was believed to be the reason for subsequent failure to get primary union. Fortunately the individual muscular and aponeurotic layers healed, but the skin wound fell apart throughout nearly its entire extent. In spite of an existing lack of ordinary reparative processes and the customary granulating surfaces in the superficial parts of the wound, the patient has in all other respects done very well. He voids a normal amount of urine and passes it only four times in twenty-four hours. In this patient's case, even before operation, the usual degree of frequency had not been a symptom. The intervals had averaged from three to three and a half hours. His first intimation of trouble consisted in noticing blood-tinged urine, together with left lumbar pain after a long swim in cold water. At the time of synchronous ureteral catheterization quite a number of small superficial hyperemic erosions of the bladder wall were noted through the cystoscope, mostly behind the left ureteral opening. They were such lesions as the speaker has elsewhere alluded to as not uncommonly associated with a renal tuberculosis, and regarding which he has satisfied himself as to the subsequent disappearance after removing the diseased kidney.

Dr. Eugene Fuller said that patients with pericystitis associated with contracted bladder were always left in a worse condition after drainage of the bladder than before. About ten days ago he saw such a case upon whom he refused to operate; the bladder was contracted and had been washed out for fifteen months, a procedure which had apparently aggravated the lesion; the whole interior of the bladder showed a granular mucous membrane, much thickened and shrunken. He believed that anybody who operated upon this patient would come to greatly regret having done so, for the bladder would shrink all the more as the result of drainage. The only thing to do in this case was to treat the patient therapeutically and hygienically.

Dr. Egbert Le Fevre said that in both private and hospital practice where there was pulmonary tuberculosis he had only observed a few cases in which there was a secondary involvement of the kidney or bladder. In the majority of the cases of genito-urinary tuberculosis there had been a secondary involvement of the testes. Whether his observations differed from those of genito-urinary surgeons he could not say. With regard to primary involvement of the genito-urinary tract with secondary involvement of the respiratory tract he had but two authentic cases; in two others with late pulmonary involvement they had the ordinary symptoms of bladder tuberculosis for some time previous. He examined the lungs at that time and made repeated examinations extending over 1½ years, even injecting tuberculin to see

if he could get any increase of physical signs that would warrant a diagnosis of pulmonary tuberculosis. Six months after the last examination one of the patients developed an apex lesion. In that case there was a pulmonary involvement three years after that of the bladder. He referred to certain experiments in which the tubercle bacilli had been injected into the bladders of animals and a secondary infection of the lungs had followed. These experiments were carried on to prove the theory as to the likelihood of tubercles being deposited in the apices of lungs by the blood-vessels, the bacilli being carried there from other parts, as the bladder. With regard to the treatment of genito-urinary tuberculosis, especially bladder, he had never had much permanent relief from surgical interference. In two cases in which there was primary involvement of the lungs the kidney symptoms entirely disappeared with the improvement of the pulmonary condition. He did not think the kidneys furnished a good soil for the growth of the tubercle bacilli and the occurrence of subsequent lesions. Only when there was a marked deterioration of the health was there any localization of the tubercle bacilli in the kidney which would be followed by a marked lesion. He asked Dr. Brown if, in the kidney case presented, there were any secondary deposits elsewhere in the body. He said that in the later stages of general military tuberculosis kidney lesions were rather common. Excluding such a general infection he said that one rarely saw such a marked implantation of tuberculosis, as was shown in the photograph of the kidney of the case, who was shown, except when it was done to extension from contiguous organs, or infection, blood going to one kidney by rupture of tuberculous material into it.

Dr. Eugene Fuller cautioned against too great an effort to make diagnoses through instrumental exploration in cases of suspected genito-urinary tuberculosis, lest a quiescent focus of tuberculosis be transformed into an active one. A patient may come to one feeling fairly comfortable; he may be simply urinating frequently, but without pain. If one should examine him with a sound, no matter how clean, or if he should search for a stone in the bladder and handle the instrument rather roughly, one may then stir up a great deal of discomfort, incontinence of urine, perhaps, and much pain, so that the patient would blame the surgeon for using the instrument. Before approaching such patients with instruments Dr. Fuller advised that we should try bacteriological aids first and go more into the history. If an instrument should be used the patient should be cautioned regarding the after-effects. In regard to the general question of operative surgery in these cases, he believed that we should lean toward conservatism. If there is not too much pyrexia he advocated the hygienic treatment; if there is much pyrexia and a suppurative focus, the latter should be gotten rid of in a surgical way and then therapeutic and hygienic measures should be adopted. He did not believe it was wise to operate upon a bladder when there was an active focus of tuberculosis elsewhere in the body; that is, if a kidney was involved he did not see any use in operating upon a bladder, even though it be involved, because this might stir up the tuberculosis in the kidney, and we might get other foci.

He said he was not as fond of the suprapubic operation for tuberculosis of the bladder as Dr. Johnson seemed to be. A few years ago Guyon gave it up and returned to perineal cystotomy. Once in a while one got good results from such drainage operations, but very frequently the results were deplorable. He said he was not as radical in the surgery of the genital tract as Dr. Blake, and he felt rather strongly against castration, as a rule, in those cases where the epididymis only was

involved. In 90 per cent. of the cases where there was tuberculosis of the epididymis the testicle proper was not involved. He said he supposed he had removed epididymes and spared the testicles fifty times, and he had not left his patients with persisting sinuses. Recently a man appeared in his clinic from whom four years ago he removed the epididymis on one side. This patient when first seen had but one testicle, the other having been removed two years previously during an attack of tuberculous epididymitis. He then had an acute suppurative tuberculous process in connection with the remaining epididymis, and it was with difficulty the testicle was saved. That was four years ago. He is now a mentally satisfied man, with good sexual vigor. In cases of tuberculosis of one epididymis if the testicle is removed it was probable that within one or two years the other testicle would become involved. He believed that if the dissection was begun low down, peeling off a great deal by blunt dissection with the fingers, one could get the diseased portion away from the testicle without materially damaging its blood supply; but, if one began at the top and dissected downward, the blood supply would quite likely be disturbed. A man with a testicle, even though the epididymis has been removed, retains his masculine characteristics. He considered that a patient should not be deprived of his sexuality, except on the most urgent necessity.

Dr. Ellsworth Eliot, Jr. said it was often a very difficult matter to make a diagnosis of tuberculosis of the kidney during the early months from both subjective and objective symptoms. Two years ago in the medical wards of the Presbyterian Hospital a patient was admitted, who, for a number of weeks, had irregular fever and irregular abdominal pain, which pointed to the possibility of typhoid fever. This was finally excluded and he was transferred to the surgical division with a tentative diagnosis of appendicitis. During this time the pain did not remain in any one quadrant of the abdomen, although it did remain upon the side that subsequently was found to be that of the affected kidney. At the end of three or four months, during which time the urinary symptoms, notwithstanding the repeated examinations of the urine, failed to elicit the bacilli, the patient developed a tumor in the left flank. A diagnosis of some kidney difficulty was made, the kidney was removed, and found to be in a state of acute tuberculous necrosis, that organ being one mass of multilocular abscess cavities. He believed a radical procedure in cases of tuberculous kidney may be of benefit, but he realized that it was not always curative. He referred to a case of nephrectomy which was followed only by temporary relief in spite of the fact that the urine was apparently normal for weeks; yet the other kidney became affected, and, in the course of eight months after the nephrectomy, the patient died from tuberculosis of the opposite kidney associated with perinephritic abscesses. There were also extensive changes in the lungs which had not yielded physical signs eight months previously. He believed the limits of the operation should be extended, as for instance, in those cases in which tuberculosis was not necessarily limited to one kidney, or had invaded distant organs; in such cases in which tuberculosis invaded both kidneys he believed the kidney more affected should be removed when the daily amount of urea, and other solid material was not materially abnormal, and that the patient might recover and enjoy a respite from the disease with almost a complete subsidence of the tuberculous process in the remaining kidney. The end results in these cases were of interest. He referred to one case in which a left nephrectomy was done for a tuberculous kidney; at the same time there were tuberculous foci in the lungs in quiet condition, and a healed Pott's disease, tuberculosis and tuberculous cystitis of the pleura, and

yet the patient recovered from the nephrectomy and had good health since. The operation was performed one year ago last August. He recommended nephrectomy when the tuberculous lesion appeared to be in one kidney only; here the end results were satisfactory. He said many cases, after such an operation, had remained well for from three, four, five, six or eight years.

With regard to tuberculosis of the testicle he said that where formerly he inclined toward the radical procedure of castration, within recent years he rather advocated the removal of the diseased tissue when limited to the epididymis. In many cases the disease seemed to be checked, the oldest case he had dating back $3\frac{1}{2}$ years. A young doctor came to him with a tuberculous epididymis, and the patient objecting to castration, the tuberculous foci upon the diseased side were excised, requiring the removal of the epididymis. This patient made an excellent recovery and no recurrence has ever taken place, so far as any external examination could determine. Two years after the primary operation, however, he developed a tuberculosis of the opposite testicle, which yielded satisfactorily to the same therapeutic measure. The patient had been healthy ever since, and there has been no atrophy of the testicle on either side. In many cases he did not believe that atrophy need necessarily follow. If a part of the epididymis only be removed he believed that procreation, in certain cases, was possible.

Dr. A. A. Berg agreed that in the presence of secondary vesical tuberculosis, it was essential and absolutely necessary to attack the primary focus of disease. As a rule, secondary vesical tuberculosis healed, when the primary focus was removed, and the patients were placed amidst good hygienic surroundings. To him it was a peculiar fact that secondary vesical tuberculosis healed under the above conditions, whereas secondary ureteral tuberculosis manifested no such tendency. It is a good rule, therefore, to remove a tuberculous ureter at the time of the primary nephrectomy. He called attention to the pitiable state in which patients are often left after the tuberculosis of the bladder has healed. They have a contracted bladder holding from one-half to $1\frac{1}{4}$ ounces; they must urinate every fifteen to twenty minutes, and are in consequence utterly unfitted for doing any work. Such a contracted bladder was especially likely to follow, if a suprapubic or perineal cystostomy had been previously performed. In the treatment of these miserable patients, who often look in the very best of health, we can do absolutely nothing, beside establishing a permanent bladder fistula. Attempts to distend the bladder usually fail to accomplish a lasting beneficial result. The patients are benefited for a time only; as soon as the local treatment is stopped, they relapse into their previous condition. These patients continue to be invalids. Regarding tuberculosis of the testicle he said that the experience of Dr. Blake was at variance with that of the best French and German observers. In a recent article in *Langenbeck's Archiv*, Vol. 70, Dr. W. Bogoljuboff showed experimentally that after partial and complete epididymectomy with implantation of the vas deferens into the remaining part of the epididymis or into the testicle, respectively, the spermatic channels of the rete testes communicated freely with the vas deferens. As to local recurrence after shelling out of tuberculosis areas in the epididymis or testes, he could recall two cases that had gone two years without such recurrence, the patients maintaining perfect health.

Dr. F. Tilden Brown said, in answer to Dr. Le Fevre, that so far as could be determined by a most careful examination, there was no other foci in the body. In the one particular case referred to the man had always considered himself healthy until after a swim in very cold water along the coast of Maine; he then noted a

bloody tinge to the urine. With regard to suprapubic cystostomy for tuberculous lesions he said that the frequency with which permanent fistulae followed these operations was due to the great carelessness in anticipating this possible complication, and in not making proper provision before the operation to treat the lesion actively when the suprapubic wound was made, treating the lesion with the sharp curette and cautery and other known therapeutic measures; and then to close the wound in layers providing only for little drainage in the prevesical space. He believed it to be a fallacy to leave the suprapubic wound to take care of itself, to heal or remain open, with the chance of becoming a source of great discomfort to the patient. He believed the surgeon should be prepared to know what he was going to encounter by doing a preliminary cystoscopic examination and then lay his plans for subsequent drainage; this may be had by continuous urethral drainage, or possibly perineal or vaginal. In cases of advanced contracted bladder every means should be taken to maintain a permanent suprapubic drainage until the end.

Dr. Joseph A. Blake said that he was glad to hear epididymectomy so unanimously recommended. When both sides were involved he endeavored to leave one testicle. Epididymectomy was not so good as castration for many cases in which the removal of the entire disease was important, and besides castration was a shorter operation. In regard to Dr. Eliot's case the chances of extension to the other side would have been much reduced if the vas deferens had been removed. Tuberculous disease should be treated in the same way as malignant disease, and if possible all the diseased structures should be removed; the vas deferens and seminal vesicle as well as the epididymis. In tuberculous glands of the neck, no one would think of removing one; the whole chain must be dissected out. Regarding the re-establishment of the continuity of the epididymis and vas deferens after epididymectomy, he could not believe, evidence to the contrary notwithstanding, that in a tube so slender that its twenty-two feet only occupied the bulk of the normal epididymis, that its lumen would not be occluded by the resulting scar tissue. For the same reason it was hard to believe that the vas could attach itself to the testicle. For these reasons he thought that the vas should be removed in all cases.

Dr. Ellsworth Eliot, Jr., said that it was a well-recognized fact that infection of the opposite testicle frequently followed even after castration. He took exception to the statement that if there was a tuberculous disease of one testicle the bacilli could (after ascending) go up the vas deferens, with or without involvement of the seminal vesicles, bladder or prostate, travel in the opposite direction to the normal testes. If the other testicle was involved he said it was probably embolic. He referred to a recent article reviewing a series of experiments in which the writer had demonstrated that tubercle bacilli could not, in dogs, descend along the vas deferens to the testes, against the current of its secretion. He agreed with what was stated regarding excision of the epididymis, but excision of the vas deferens and the patient subsequently becoming the father of a child he doubted.

THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held November 5, 1903.

The President, J. M. Fisher, M.D., in the Chair.

Observations on Gynecological Surgery in the German Clinics.—This was Dr. Charles P. Noble's paper, and consisted of critical remarks upon the operative work seen in the clinics of Professors von Rossthorf of Heidelberg, Olshausen and Mackenrodt of

Berlin, Leopold of Dresden, and Dr. Amann, of Munich. Especial attention was devoted to the radical operation for cancer of the uterus as performed in Germany. Von Rosthorn has been performing the operation which he calls the "der erweiterte Freund" for three years and a half, with increasingly good results, so far as the primary mortality is concerned. One operation was witnessed in which the connective tissue and glands of the pelvis were removed from the bifurcation of the iliac vessels to the bottom of the pelvis, leaving the oburator nerves running free across the pelvis. The operation was done without hemorrhage, and completed, including the suturing of the abdomen by the stage method, in one hour and five minutes. The other German advocates of the radical operation are Wertheim, Mackenrodt and Amann. It is clear that more tissue can be removed by the radical operation than by the usual operation for cancer of the uterus. The mechanical and anatomical difficulties are such, however, that tissue must be left about the ureter and attached to the bladder and to the rectum. The operation is too recent for legitimate conclusions to be drawn, except as to the primary mortality. If this can be brought within bounds, the analogy of cancer operations in other portions of the body, especially the breast, will influence surgeons to do the radical operation in the pelvis, at least until the question as to the relative permanent results to be obtained by it and the less extensive operations is finally determined. Dr. Noble stated that, following Clark, some years ago he had done the radical operation for a time, but had abandoned it because of its increased primary mortality. The operation, as done by von Rosthorn, however, showed a marked improvement in the technic, which permitted the operation to be done in about an hour, instead of in two hours or two hours and a half. The chief advocate in Germany of vaginal hysterectomy for cancer is Olshausen, who advocates vaginal hysterectomy for cancer on the ground that the primary mortality is lower, and that if the disease is limited to the uterus, the operation is curative. He opposes the radical operation on the ground that if the disease has advanced beyond the uterus, the case is hopeless, no matter what operation is employed. The operation for retrodisplacement of the uterus as performed by von Rosthorn is quite similar to the original operation as introduced by Olshausen, the technic consisting in opening the abdomen in the middle line above the pubes, seizing first one and then the other round ligament near the cornua of the uterus, and suturing it to the abdominal wall on each side of the abdominal incision near the pubes. Dr. Noble reported a uretero-cystostomy performed by Prof. Mackenrodt after his method. The entire operation is extraperitoneal. The case reported was one of unusual difficulty because the ureteral fistule followed a radical operation for cancer by the Mackenrodt technic, part of which consists in stripping the peritoneum away from the abdominal and pelvic walls; hence, in performing the operation upon the ureter, when the peritoneum was detached from the abdominal and pelvic walls, it was not the separation of its normal connective tissue attachment, but the separation of adhesions resulting from the previous operation. Nevertheless, and in spite of these added difficulties, the operation was quite feasible and very satisfactorily performed. A report was made on various plastic operations performed by Prof. von Rosthorn and by Drs. Kehrer, assistant in the Heidelberg Frauenklinik, and Henckel, assistant in the Berlin University Frauenklinik. Plastic work in Germany is by no means so well developed or so well performed as is the abdominal surgery.

Dr. Noble stated that his various visits to the German clinics in the last six years showed a very marked improvement from every standpoint. This improvement is not only true of the mechanical part of the technic, but also of the aseptis. A very substantial improvement has also been remarked in the character of the hospitals and operating rooms. The newer hospitals in Germany, of which that of Leopold in Dresden may be taken as a type, are models of their kind.

Dr. J. G. Clark said that Dr. Noble's observations on German gynecological surgery are especially interesting, because of his mature judgment, and therefore his capabilities as a just critic. It was very interesting to him to know that the abdominal surgery as now practiced by German gynecologists is so much better than it was six years ago, when Dr. Noble made his last visit to these clinics. At that time Dr. Clark made the rounds of the German and Austrian clinics, and his impressions were the same as Dr. Noble's relative to the comparative superiority of American gynecology over that generally observed in these countries. In extenuation, however, of this apparent inferiority, he would say that at that time the furor for vaginal hysterectomy, which had sprung up in Paris and had spread over to Germany and Austria, was in full sway, and by far more pelvic surgery was being done by the vaginal than by the abdominal route. Since then there has been a general tendency, not only in Paris, but also in Germany, to return to the abdominal incision as the best means of reaching the surgical field in the pelvis. He believes, therefore, that the marked improvement which Dr. Noble noted is due to this fact. A short time since the advocates of the abdominal methods were apparently in the minority in Germany, whereas at no time has been this the case in the United States. There has, therefore, been a steady and continuous improvement in our country, whereas there was a period of three or four years in Germany in which there was from the abdominal surgeon's viewpoint retrogression, rather than progress in this line. As to plastic operations, his observations at that time were in accord with those expressed by Dr. Noble. Without question, this class of work is universally better performed in the United States than in Germany, and Dr. Clark believes the credit is due first to Emmet, and second, to the many students of Emmet, and Sims, who have practised and improved upon the methods of their teachers. In his entire rounds of the German clinics he does not recall having seen a single Emmet operation performed, the Tait and Hegar, or some modification of these operations, being universally in vogue. As the principles of these operations unquestionably do not possess the well-grounded anatomical basis of the Emmet operation, it is not especially remarkable that the results among our German, Austrian and French colleagues are not so good as those following the Emmet operation. Relative to hysterectomy for cancer as performed by Von Rosthorn, Mackenrodt, Wertheim, Krönig and others, it goes without question that they are all based upon the original operation as performed first by William Alexander Freund, and are, therefore, as von Rosthorn designated them, merely extended or widened (erweitert) Freund's operation. Relative to Wertheim's operation, which is so much alluded to in gynecological literature at present, he regretted to see that the work of Werder, of Pittsburgh, was constantly ignored. Werder unquestionably published the accounts of his operations first, and his principles are essentially the same as those described by Wertheim. So far as calling attention to the metastasis of the pelvic lymph glands is concerned, however, he would give the greatest credit to Wertheim, for he is the first operator

to systematically study serial sections of suspected glands. He has especially emphasized the importance of a serial study of the glands, and he has shown that the early stages of metastasis may only be demonstrated in isolated portions of even a small lymph gland; therefore, to take one section of such a lymph gland and upon finding it free of carcinomatous cells to pronounce it free of metastasis, is a fallacy. When Dr. Clark began the study of this subject in 1892 and 1893 he was convinced of the analogy between carcinoma of the breast and that of the uterus relative to early metastases. A study of the lymph glands, however, which were removed in these early operations, seemed to show that they were occasionally the seat of metastases, which appeared to destroy this analogy. It may be said, however, that Ries insisted, from the time he first described his more extensive operations for cancer of the uterus, that there is this early metastasis, and therefore, Wertheim's extensive study confirms his frequently repeated assertion. Notwithstanding the fact that he always performs the radical operation for cancer of the uterus, he attaches less and less significance to the extensive removal of the lymph glands as a curative measure, for he believes that if the glands are once infected a recurrence is almost inevitable, let the operation be as radical as possible. For the last three or four years he has considered the removal of these glands as of prognostic rather than of curative value. In summarizing his opinion, therefore, of the extended Freund operation, as performed by Wertheim, Mackenrodt, Krönig, and Von Rosthorn, he would say that it is the operation of preference, but only in the hands of skilled abdominal surgeons. Only by carrying out fully and accurately the details of these operations will be discovered definitely its range of usefulness.

Dr. R. C. Morris said that Dr. Noble is to be congratulated for taking the Society with him to the places he visited, and he thinks it would be well if more men who regularly go to Europe would systematically note what they saw and when they came back give the societies such a review of their visit. He was more especially interested in the radical operations for carcinoma, and it seems that Dr. Noble had that in his mind particularly. He was most interested to learn the ultimate results of the aggressive and radical work for cancer of the uterus. Personally, he is doing less and less; it is only in the earliest cases that he now does either vaginal or abdominal hysterectomy. He believes, however, that the work described by Dr. Noble's paper will enable us to finally settle this question of the permanent value of hysterectomy for cancer.

Dr. A. J. Downes said that in the past three years he had also noticed a vast difference in the work of surgeons all through Europe. Three years ago while in Europe it appeared to him that American surgeons were wonderfully superior in their technic to anything he saw there. He noticed this year that new operating rooms were springing up all over Europe. Leopold's particularly impressed him. Landau, of Berlin, also has a new outfit, which is equal to anything one would find anywhere. He also visited Mackenrodt with a view of seeing his cancer operation, but was disappointed; however, he saw a patient that he had performed it on and in this case there was a very large recto-vaginal fistule high up, which he repaired. One thing that struck him in Germany was that there were two camps, one class of men who still persist in doing vaginal work, and another class who prefer to do abdominal work. He asked one man, he thinks it was Mackenrodt, the cause of this, whether it was due to the fact that they had been doing this for a long time and before it was possible to do such aseptic surgery

as is done now. He remembered asking Kümmel in Hamburg the same question. He agreed that the men who early started to do vaginal work persist in it. He noticed one of the men who does a vast amount of vaginal surgery, when he did a fairly difficult operation for large fibroid through the abdominal incision, was not equal to control of hemorrhage anything like a man who usually does abdominal surgery.

Dr. Charles P. Noble, in closing, said that he was especially interested this year in trying to see what is being done with the radical operation for cancer of the uterus. When Dr. Clark first began doing this operation in this country he did it for a while. It took him two hours and sometimes longer. The primary mortality in his hands was not encouraging, so he gave it up. He was interested in the matter, because he wanted to see how other men managed it. If every case could be dealt with as beautifully as von Rosthorn's he believed we would all do it, because one can remove more tissue than by the ordinary methods of operation.

Paralysis of the Abdominal Sympathetic and Fecal Impaction Following Labor; also a Case in which Death from Hemorrhage Followed Premature Labor.

—These were the themes of Dr. Edward P. Davis' paper. Paralysis of the abdominal sympathetic may be observed after delivery in cases where the fetus is unusually large, in polyhydramnios and in exhausted women; it may be associated with post-partum hemorrhage and the depressing effects of both lead to a fatal issue. The patient reported was a multipara pregnant for the second time, in whom paralysis of the abdominal sympathetic occurred after the delivery of a normal fetus when hemorrhage was absent and where the mother was apparently not exhausted. The great abdominal distention, the patient's very rapid and feeble pulse, the tension in the intestine, the temperature, the continuance of normal lochia and the final recovery of the patient identify the condition as one of vasomotor paralysis, accompanying toxemia of intestinal origin.

Case II.—The woman was twenty-three years of age and in her third pregnancy. Her previous labors had been spontaneous, but were long and severe. She was markedly anemic. For six weeks she had daily bleeding. She was seven months pregnant upon admission to the Jefferson Maternity and remained in bed until the termination of labor, ten weeks later. There was no evidence of placenta previa. Hemorrhage ceased when she was put to bed. When labor occurred there was delay through inertia, complete dilatation was secured artificially and a living child delivered by forceps. The mother made a good recovery and left the hospital with her child in fairly good condition. About eighteen months afterward this woman was again admitted to the Maternity, five months pregnant, and she had had severe hemorrhages. The patient was soon delivered, and did well for a week when hemorrhage recurred. The uterine cavity was carefully explored, found empty, and was packed with iodoform gauze. The hemorrhage ceased, to recur a week later, and controlled in the same way. Two weeks later another severe hemorrhage occurred which was also controlled by gauze packing. The patient died two weeks subsequently of exhaustion following a return of the hemorrhage. In the absence of a history of hemophilia and placenta previa, it is difficult to find an adequate explanation for the hemorrhage. *Scyntioma malignum* presents itself as a possible and even probable explanation, and a more complete autopsy might have given evidence of its presence. There was no fibroid growth present in the uterus, nor was there any other lesion of the pelvic organ. No measure, except compression

by gauze, seemed to influence the bleeding. At no time did the patient's condition justify hysterectomy.

Dr. R. C. Norris said that both the cases that Dr. Davis reported are of great interest, and as he was reporting them Dr. Norris cast about in his mind to recall analogous cases. In the first place he should like to speak of the question of fecal impaction and fecal toxemia following labor. It has been his fortune to be worried on several occasions over his patients in the Preston Retreat by finding an elevation of temperature, which, however, would rapidly disappear after the free administration of purgatives and high enemas, enormous quantities of fecal matter being discharged. In hospital practice it is by no means uncommon, but on the contrary, quite common, for pregnant women to have stored up in them large accumulations of fecal matter with greater or less degree of toxemia. He recalls particularly a case of enormous abdominal distention, and some of the gentlemen here may recall this also. He was requested by telephone message to admit to the Preston Retreat a case of extra-uterine pregnancy. The doctor in attendance the preceding day had attended the woman in labor at full term, and had delivered her of a child through the natural passages, and then discovered an extra-uterine gestation. While in transit to the hospital all preparations were there made for an abdominal section, but upon arrival she was so ill (enormously distended, and with a pulse about 140, temperature 104° F.), and not being able to palpate her abdomen and locate the extra-uterine mass, it seemed wise to attempt to purge her and to wait until the following morning. From a necessarily superficial examination of her abdomen, on account of the enormous distention, he could find nothing abnormal indicating an extra-uterine fetus. Effort failed that night to get any movement. There was fecal vomiting. Next morning all the preparations for abdominal section were made, and several physicians were present to witness this extraordinary case. After administration of an anesthetic it was possible to palpate her abdomen, and it was learned definitely that there was no extra-uterine fetus; that there was a fecal mass apparently plugging the bowel, and under the anesthetic this enormous accumulation of flatus diminished, and with free purgation later disappeared; and, in the course of a week the patient was convalescent and went home. Of course, no operation was done. Enormous quantities of fecal matter were obtained by high enemas given to the patient in the Trendelenburg posture. He found in that case, as he had in others of distention following labor, that the use of a many-tailed bandage is a great comfort to the patient, and of very great importance to assist in the elimination of the flatus. The high enema of milk of asafetida with a many-tailed bandage seemed to do more good than any other medication. This was the most extreme case he had ever seen. He remembers seeing with Dr. Boyd in the wards of the Lying-in Charity, a case of enormous distention—one could see the coils of intestine through the over-distended abdominal wall. In one of his cases he found it necessary to open the abdomen and puncture the intestines to let out the gas. He believes that patient's life was saved by this measure. This was the only occasion on which it appeared desirable or necessary to resort to so heroic treatment. The case he has referred to to-night will be reported in detail in the report of his work at Preston Retreat. He wished to impress the fact that the fecal accumulation, with distention and temporary fever, particularly in hospital cases, is really a very common condition, so much so that his head nurse, who has seen over 3,000 confinement cases in the Retreat, rigidly enforces his rule that all waiting patients are to be daily

purged freely with salts and licorice powder to prevent fecal accumulation and fecal intoxication. He has also a case in mind, not wholly analogous to Dr. Davis' case of hemorrhage. The patient had the tendency to bleed during pregnancy and when she came under his care was exceedingly pale from anemia. She had profuse hemorrhage forty-eight hours after her labor, and in spite of a gauze plug, she kept oozing a clear serum. The nurse thought she was passing urine involuntarily, so little colored blood did she appear to have in her body. Dr. Allen found she had only 15 per cent. of hemoglobin. This case also will be reported in detail in the forthcoming report of work in the Preston Retreat. All means of stimulation were tried, and the more salt solution given, the more she simply wet the bed apparently. There appeared to be no ability on the part of her blood to coagulate. The patient finally died of enemia. He concluded that there was a failure of clotting in the uterine sinuses through the character of the blood itself. If he should ever meet a similar case he should use adrenalin. It seems to be one of the newer drugs that may prove useful in that kind of bleeding following labor. Dr. Davis' case certainly suggests malignant disease. In Dr. Norris' experience the cases of hemorrhage are very rare, the cases of fecal impaction and of abdominal distention are not uncommon. The cases of enormous abdominal distention with apparent nerve paralysis are certainly very rare.

Dr. Charles P. Noble said he had seen a number of cases somewhat similar to Dr. Davis' case of fecal impaction. It is always a question in these cases whether the bowel paralysis is primary or influenced by fecal impaction. He thinks fecal impaction is the primary trouble. It so happens that he also saw the case alluded to by Dr. Norris in the Lying-in Charity. He remembers the distended bowels which one could feel through the abdominal wall. The woman had the ordinary symptoms of obstruction. His recollection is that an abdominal section was done and nothing at all found. In abdominal work he has frequently had these cases of fecal impaction with toxemia, and he thinks that not only is it very important in treating these cases to irrigate the colon, but it is also very important to wash out the stomach. A great many of these patients die from absorption from the stomach. He once opened the abdomen, supposing that the patient had an obstruction with distended bowels. When he opened the abdomen he discovered the entire distention was due to a very full stomach. While the woman was on the table a stomach tube was introduced, and the abdominal distention disappeared into the bucket. Since that very striking case he has always dealt with these cases by washing out the stomach as well as the bowel. By the stomach tube we can far more surely introduce cathartics than in the ordinary way. As a rule it is useless to give cathartics; they simply cause vomiting and are useless. By first washing out the stomach, and using salts or some other cathartic we are usually able to get good results.

Dr. Stricker Coles said in regard to the second case Dr. Davis reports, that of hemorrhage, when he first saw this patient she was ten or twelve weeks pregnant. He had never seen as much blood lost and the patient still go on with pregnancy. He told her she had lost the embryo. On making examination the uterus seemed much smaller than it had been when he had examined her two weeks before. She was in bed from this hemorrhage for some little time. He gave her a rectal injection of a large amount of salt solution. She was almost pulseless at the wrist when he saw her. He had been late in getting to her. She recovered from that and came down to see him about three weeks later,

making about the sixteenth week of gestation. He found that she was still pregnant, and she went on with the pregnancy, having slight hemorrhages off and on. When she came into the Maternity she was in a fair condition, and her delivery was accomplished with ease. There was no hemorrhage after it and she was making an apparent perfect recovery when the first hemorrhage occurred about ten or twelve days afterward, and this hemorrhage came on without apparent cause. The woman was seemingly nearly well enough to get out of bed, and this hemorrhage was so easily controlled by packing that she revived speedily. The hemorrhage was profuse while it was short, and she would probably have bled to death had it not been promptly controlled. We packed the uterus on these occasions and could find nothing apparently out of the way.

Remarks on Cesarean Section.—This was the subject of Dr. G. M. Boyd, who said that during the past seven years in treating dystochia due to pelvic deformity, he had found it necessary to resort to Cesarean section in eleven cases. Eight of these cases were operated upon prior to 1903, and have already been reported. Of the three patients operated upon this year, one had a generally contracted pelvis and a true conjugate of 8 cm.; another a generally contracted rachitic pelvis, with a true conjugate of 7.5 cm.; and the other a rachitic pelvis with a true conjugate of 7.5 cm. A living baby was secured in each case, and the mother made a good recovery. Celiohysterotomy was the operation of choice in each case. Of the entire series of eleven cases, with the exception of one dead child, the list is without a mortality. One patient had lost one child; two patients had lost two children; one patient had lost six children. There were three repeated Cesarean sections; in four patients the elective operation was performed; in seven there was the test of labor; in all the elective cases there was a history of one or more labors, ending disastrously to the child.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held December 1, 1903.

The President, Pearce Bailey, M.D., in the Chair.

Case of Brain Tumor with Autopsy.—Dr. William M. Leszynsky reported this case. The patient was a girl aged nineteen years, a stenographer and typewriter by occupation. She was admitted to the Eye and Ear Hospital on January 12, 1903, and was seen in consultation with Dr. H. Jarecky. She was totally blind as a result of intense papillitis. The eyeballs were slightly prominent and rigid. She had never indulged in alcoholics, but had used tea excessively. Nine months ago she had begun to suffer from unusually severe occipital headaches, generally at night while asleep. The more severe attacks were accompanied by vomiting. There had also been severe attacks of vertigo. Two months previously she suddenly became blind in the right eye, and one month later the left eye became similarly affected. She remained in the hospital about two months, during which time she complained of frequent and severe headache in the right temporal and parietal regions, associated with tonic left facial spasm. Involuntary urination occurred from time to time. There was a slight paresis of the left facial distribution. The left knee-jerk was more pronounced than the right, but ankle clonus was absent. The urine was negative. The pulse was about 78. She received a thorough course of iodide of potassium and mercurial inunction without improvement. His diagnosis was cerebral tumor involving the right hemisphere. She was admitted to his service at Lebanon Hospital on March 7, but would not consent to

an exploratory operation. She could not recognize by touch any familiar object with the left hand. The convulsive attacks gradually increased in frequency, there being later clonic movements of the face, and nystagmus with retraction of the head. On May 18 there were several attacks of sudden vertigo associated with tonic and clonic spasm of the left side of the face and left arm and leg. Toward the end of May, in addition to a pronounced facial paralysis, the orbicularis palpebrarum became decidedly paretic a few weeks later. The Babinski reflex was exquisitely demonstrable on both sides. During her stay in the hospital the pulse varied between 98 and 100, the respirations were 24 and the temperature 98° to 99° F. On May 30 she was admitted to the Presbyterian Hospital to the service of Dr. McCosh for operation. On June 6, while conversing with Dr. Leszynsky, she suddenly became unconscious, and the limbs were rigidly extended. Both eyes were closed, the face was pale, and the pulse was regular. There were no clonic movements. After about three minutes there was complete muscular relaxation, and rapid and almost abrupt return to consciousness. On June 9, Dr. Starr concurred in the diagnosis and thought there might be multiple lesions. Two radiographs were made, one anteroposteriorly, and the other laterally. The operation was done on June 11, 1903, under chloroform, a flap being raised over the fissure of Rolando. The intracranial pressure was found to be markedly increased. At the depth of an inch and a half, in the direction of the right lateral ventricle, cerebrospinal fluid was reached. No tumor formation was discovered. A silk-worm-gut drain was inserted, and after operation between one and two pints of this fluid drained away each day. Following the operation there was, for a short time, a complete left hemiplegia with rigidity. She died on July 8 from lobar pneumonia, four weeks after the operation and seventeen months after the symptoms of brain disease. The autopsy was made fifteen hours after death by Dr. George A. Tuttle. The examination was limited to the brain and its contents. The brain tissue in the region of the operation was quite soft. A soft red mass was found in the right ventricle, about the size of an egg, which apparently sprung from the inner wall of the ventricle. The tumor was thought to be a glioma. There were two organized blood clots in the ventricle. Macroscopically, all the other portions of the brain and meninges appeared to be normal.

Dr. J. F. Terriberry said that he had seen this case at the Manhattan Eye and Ear Hospital. The astereognosis was one of the most prominent symptoms at that time. The young woman had spasmodic contractions of the face muscles, first on one side and then on the other. The importance of the astereognosis as a localizing symptom had been forcibly impressed upon him by this case. If these symptoms coming from the basic area of the brain had occurred earlier, they might have led to an erroneous diagnosis.

Dr. George W. Jacoby said that the most interesting part of the report to him was the demonstration of the X-ray plates. In the skiagraphy of tumors of the brain we possessed a very valuable adjunct, but we should insist upon more precision in the description of these examinations. Over a year ago he had exhibited to this Society two skiagraphs of a case of tumor of the brain, taken during life. The patient was subsequently operated upon, and the tumor removed, and the patient lived five months longer. This case proved the feasibility of obtaining skiagraphs of practical value in these cases of tumor of the brain. Oppenheimer's experiments in this direction were very interesting. He had experimented with a hardened tumor in the brain and with a hardened tumor within the skull, and had succeeded admirably, but had failed on attempting to photograph

brain tumors during life. Dr. Jacoby said that he had repeated these experiments, and had discovered that when soft or fresh tumors were used the result was not successful. Since that time he had made many clinical examinations on supposed brain tumors without obtaining a single positive result until the one presented by him a year ago. This experience showed that one should work with a known tube and with a known exposure to determine what would give a complete transillumination of the skull. Having done this, the minimum exposure should be used, say $7\frac{1}{2}$ or 8 minutes, and then each successive exposure should be made a little longer. In his own successful case exposures of 10 $\frac{1}{2}$ and 11 $\frac{1}{2}$ minutes, respectively, were successful, whereas longer and shorter exposures led to failure. It had been thought by some observers that the result would only be successful with a thin skull and a hard tumor, but in his own case the bones of the skull were thick and the tumor friable.

Dr. Leszynsky said that within the last two months he had examined two patients who undoubtedly had brain tumors, which could not at the time be accurately localized. In each case there was astereognosis present on one side, yet when seen again the astereognosis had disappeared. These patients were examined a great many times, and it had been noted that the astereognosis was very variable, being present at one time and absent, perhaps, half an hour later.

Is Epilepsy a Functional Disease?—Dr. M. Allen Starr was the author of this paper. He said that he had come to the conclusion that epilepsy was an organic disease, and this opinion was based upon a personal study of two thousand cases of epilepsy of which he had satisfactory records. The recognition of Jacksonian epilepsy of several different types was now universal. This form was admitted to be a symptom of organic disease, though the nature of the latter might vary considerably. The character of the attack was uniform because the disease produced a uniform kind of irritation. In 38 per cent. of his cases of ordinary epilepsy the attack was preceded by an aura, which was identical in many cases with the sensation starting a Jacksonian attack; the only difference between a Jacksonian attack of the motor type and the idiopathic form was in the extent of the spasm. The Jacksonian attack might run into a general motor spasm, showing that there was no essential difference between the two. The same might be said of the sensory attack. In many cases the fit began with a cry, a discharge from the motor speech center. If the Jacksonian attack became severe and widespread, consciousness was apt to be lost. The close resemblance in 23 per cent. of his cases between Jacksonian and ordinary epilepsy seemed to him to offer an argument that, in these cases at least, the ordinary type of epilepsy was due to organic lesions. Another argument in support of his proposition was found in a study of cases of maldevelopment of the brain. Of 400 of such cases, elsewhere analyzed, 156, or 39 per cent., were subjects of epilepsy. It was not uncommon to suppose a child to be suffering from epilepsy only, and yet careful inquiry showed a previous apoplexy. Among his two thousand cases of epilepsy, 192 showed positive signs of maldevelopment of the brain. Of his cases of epilepsy, 68 per cent. developed before twenty years of age; in other words, during the period of brain development. The speaker maintained that many cases of idiopathic epilepsy were actually cases of maldevelopment of the brain, and that the epilepsy was the manifestation of this organic disease. The incurability of epilepsy afforded another argument for the organic nature of this disease. There was no question that proper care and treatment could reduce the frequency and sometimes mitigate the severity of the attacks. He had come

to the conclusion that the surgical treatment of epilepsy by exposing the brain and removing irritating foci offered as little hope for cure as did medical treatment. He had records of about fifty cases of Jacksonian epilepsy treated by trephining, and he had yet to see a case in which such operative treatment had been followed by a permanently satisfactory result. Another argument for the organic basis of epilepsy might be found in the alleged causes of the disease. The first of these was heredity; the second in frequency was trauma of the head. That trauma of the head was a more potent cause than trauma elsewhere was well shown by the statistics of the Franco-Prussian war. These showed that out of 8,895 wounded in the head, 46 became epileptic, whereas out of 77,463 persons wounded elsewhere only 17 became epileptic. The epilepsies of advanced life could almost invariably be traced to endarteritis and atheroma. Fright was undoubtedly a cause of this disease, as 119 of his patients had the first fit after a severe fright. One great stumbling block to the adoption of the theory of the organic origin of epilepsy was the multiplicity of causes enumerated by pathologists. The epileptic attack was the symptom, not a disease; the disease was a disorder of control. It seemed to him far more reasonable to admit that epilepsy was an organic disease of the brain characterized by a lack of control of the mechanisms over motor energy. If we adopted this rule, we would more readily admit that it was incurable, and would be more willing to aid in the establishment of colonies for epileptics.

Dr. C. L. Dana said that he was surprised that the author apparently assumed that we did not believe that epilepsy was an organic disease. At least ten years ago, the speaker said, he had spoken of epilepsy as a progressive degenerative disease of the brain, but as we did not yet know always what was this degeneration, or where it was, and could not give a morphological description of the diseased cells, it was probably wise to still describe epilepsy among diseases without definite organic basis. He also doubted if the term disease was the proper one to use in connection with epilepsy. There was certainly an underlying organic degeneration, but it seemed to him that in many cases it was rather a morbid condition than a disease process—rather a teratological defect than an actual disease. So far as we knew now it was probable that the most important factor underlying epilepsy was the tendency of large groups of nerve cells to undergo a rather progressive degenerative process. With regard to the argument about Jacksonian epilepsy, he would say that the author's statements were not strictly correct. Some forms of Jacksonian epilepsy were as much without known organic basis as ordinary idiopathic epilepsy. He had had a case of Jacksonian epilepsy with classical convulsions confined to one arm and one side of the face, lasting for years, and after death a modern autopsy gave absolutely negative results. With regard to the incurability of epilepsy he would say that the stand taken by Starr seemed to him not only incorrect, but disheartening and unfortunate. He absolutely knew of cases in which epilepsy had been cured. He knew personally of a young man who, at the age of seventeen, had nocturnal epilepsy for one or two years, the attacks coming as often as two or three times a month. He had seen the attacks himself, and they were perfectly characteristic. Under the bromide treatment this man recovered, and was now forty-five years of age, and had never had an attack since. There were now none of the interconvulsive symptoms of epilepsy, and this disease should be looked upon as cured just as much as a pneumonia might be considered cured. He had another patient who had been well for twenty years, and another for fifteen years. The very theory of the disease, assuming

it to be organic, would make a cure possible. We knew perfectly well that there were certain degenerative processes that we could arrest; for example, tabes and degenerative processes affecting the kidneys or liver, for degenerative processes were not always progressive.

Dr. L. Pierce Clark said that Dr. Dana's statement about the curability of epilepsy had interested him, because, in an experience of ten years with epilepsy, he had records of at least two or three dozen who had remained free from epileptic attacks for periods varying from eight to twenty years. It was true that they might run eighteen or twenty years and recur again, but in such cases he would look upon them as practically cured, although the original condition might still persist. He agreed with Dr. Starr that idiopathic disease had an organic basis. He did not believe that the mere existence of an organic disease of the brain was sufficient to account even for the epilepsies of the Jacksonian type. He believed that perversions of nutrition or toxic agents were potent factors.

Dr. William Hirsch asked Dr. Starr for a definition of what he called organic or functional. From a strictly biological point of view, he thought, we could not make such a distinction between organic and functional. That a disease was organic did not by any means justify us in calling it incurable. When one made a diagnosis of paranoia, one knew that it was an incurable disease, and yet it was classified all over the world as a functional disease, because no one had as yet detected any organic changes in the central nervous system. The fact that Jacksonian epilepsy was frequently due to organic changes, which we recognized as such, did not prove that general epilepsy must have a change analogous to that of Jacksonian epilepsy. As Dr. Dana had pointed out, there were cases presenting quite characteristic attacks of Jacksonian epilepsy. He had in mind cases of general paresis, and particularly one case, in which death had been preceded by a very large number of these attacks, yet a careful autopsy on this patient was absolutely negative. On the other hand, there were cases of organic disease, tumors of the brain and arteriosclerosis in which epileptiform attacks never took place. We were all familiar with eclamptic attacks, attacks due to poisoning, and dependent upon transitory changes in the brain. It was manifest that all cases of epilepsy could not be said to have an organic basis.

Dr. William H. Thomson said that the function of a lamp was to give light, and for that purpose its structure might be a glass globe, a wick and a reservoir of oil. If any portion of that structure were damaged it might interfere with its light-giving function, but this same function could be entirely abolished without in any way interfering with its mechanism, *i.e.*, by supplying it with water or poor oil. Similarly, he conceived functional nervous diseases as truly derangements of the source of nerve function, independent altogether of the structure of the brain, *i.e.*, the blood. Functional disease might be so serious as to terminate life, and yet no nerve cell or fiber could be demonstrated to be diseased, the disorder perhaps having been entirely due to a toxin in the blood. He could not believe that a disease characterized so strikingly clinically by intermittency as was epilepsy could consist essentially in a structural lesion, nutritive or otherwise. He fully agreed with Dr. Starr that epilepsy was not curable by the surgeon, and, indeed, that a surgical operation upon the brain was apt to be followed by epilepsy. A polypus of the nose sometimes gave rise to an intermittent nervous trouble, asthma. He had had a number of cases in which the removal of a peripheral source of irritation had been followed by a permanent disappearance of epilepsy. With regard to the true pathology of epilepsy, we were often misled in regarding epilepsy as due to a

discharge in the cerebral cortex. This notion he could not reconcile with the fact that every efferent impulse was always secondary to an impulse from the afferent side. His definition of epilepsy was "a sudden derangement of the normal inhibition of cortical centers upon one another, dependent, in the first instance, upon an abnormal afferent impression." The majority of cases of epilepsy he believed to be the result of toxemia. That epilepsy, with such widely varying manifestations, should be dependent upon one organic disease of the brain, he could not believe.

Dr. S. F. Hallock thought if we carefully investigated the psychical side in the early history of many cases of epilepsy we would obtain a strong argument for the organic origin of the disease.

Dr. Joseph Collins said that he personally felt no urgency in putting epilepsy into the camp of organic diseases, neither did he think Dr. Starr had presented any reasons for such urgency. That we might find epilepsy to be an organic disease he hoped, and he also hoped that if such discovery were made we would find the means of coping with this disease; yet Dr. Starr seemed to take a hopelessly antagonistic view on this point. Personally, he had never been taught to look upon Jacksonian epilepsy as an organic disease, the point upon which Dr. Starr seemed to found his main argument. He supposed that about 25 per cent. of the cases of idiopathic epilepsy presented Jacksonian attacks, but this phenomenon he looked upon as only an indication that the irritation proceeded from a certain portion of the brain. He understood this was Hughlings Jackson's view. He knew of no organic disease which came on in the first decennium of life, and continued practically for the full natural term of life; in other words, a disease that did not cut life short. He did not know of any cases of epilepsy which had been studied in the intervals of the attack, except where the observations had been interfered with by medicinal treatment to such an extent as to render these observations of no value. It had been stated this evening by several persons that changes in the brain in epilepsy had been found with a certain degree of constancy by well-recognized neuropathologists. He would say that these changes were not to be compared in any way with those which occurred in the cell bodies of the neurons in a case of poisoning by bromide of potassium, administered accidentally to a patient in Toronto a year or two ago. He thought Dr. Starr must be persuaded to modify his statement regarding the incurability of epilepsy before the publication of his paper, because it would otherwise give rise to an almost immeasurable amount of despair. He did not think there was any real justification for such pessimism. Personally, he knew that cases of epilepsy did get well, or at least practically so, and he believed we were already able to cope with epilepsy with fair success.

Dr. Thomas Prout said that he had studied a good deal of pathological material sent him from the Craig Colony by Dr. L. Pierce Clark. The cases dying in status epilepticus presented a uniform lesion of the cortex. In ordinary idiopathic epilepsies he found the same lesion in the cells of the cerebral cortex, but in lesser degree, and he looked upon these changes as characteristic of epilepsy. A case reported by Wright had attracted considerable attention, but this observer's methods were exceedingly faulty. The autopsy in his reported case was made fourteen hours after death, and the body temperature was 108° F.

Dr. Adolf Myer asked Dr. Starr what attitude he took concerning the fact that he founded his conclusions upon the occurrence of focal symptoms in such a large number of cases of epilepsy. What would he say with regard to the fact that the removal of such lesions failed

to cure the epilepsy. The word organic as commonly used implied something far more serious than the disease as described by Dr. Starr. The persistence of the epilepsy after the removal of the organic lesion would seem to indicate that there was a general disorder present.

Dr. W. M. Leszynsky said that after a number of years of clinical experience he certainly disagreed with Dr. Starr in his pessimistic views as to the curability of epilepsy. It could hardly be doubted that a certain proportion of the cases of idiopathic epilepsy were cured. Reference was made to two cases in which the patients had promptly improved, and had been practically free from epileptic attacks for several years after the bromides had been discontinued, and proper attention had been given to the general health.

Dr. Max G. Schlapp said that it should not be forgotten that epileptiform convulsions could be produced by many different things; hence, to take a symptom or a group of symptoms and dignify them with the title "organic disease," seemed to him to be going too far. We knew that in children convulsions could be brought on easily by slight irritation of the peripheral nervous system, and to say that these convulsions were produced by an organic lesion in the central nervous system was not justified by the transitory nature of these symptoms. The difference between a Jacksonian epilepsy and an ordinary epilepsy was perhaps to be found in the position of the lesion. If the irritation were beyond the motor center it was possible that the irritation would spread throughout the cortex, giving rise to unconsciousness and various central disturbances. The lesions described by Dr. Prout as occurring in epilepsy were found in other conditions. The principal lesions found, according to the Nessler method, were chromatolysis, and might be present in connection with various forms of poisoning.

Dr. Edward D. Fisher said that he had long believed epilepsy was an organic disease. The fact that we could produce convulsions similar to what we understood as epilepsy, did not necessarily mean that they were really epileptic. The characteristic of epilepsy was its persistence; it was the general mental state as well as the convulsion which constituted epilepsy. We should sharply distinguish between idiopathic epilepsy and epilepsy due to any other non-irritating cause. He did not think Dr. Starr meant to give any definite pathology for epilepsy, but merely to state that it was an organic disease. He could not agree entirely with him, however, regarding the incurability of epilepsy, although he would admit that it probably was the most nearly incurable disease known. He could not conceive of a disease which went on year after year with exactly the same symptoms as at the beginning, without there being back of it an organic lesion.

Dr. Starr closed the discussion. He said he was exceedingly obliged to the society for its full and free discussion of this important topic. He was willing that his statements about the incurability of epilepsy should not be published; nevertheless, he believed, with Dr. Fisher, that epilepsy was one of the most incurable diseases we were called upon to treat. It was true that the various speakers had spoken of one or two recoveries, yet those present must have seen hundreds of cases of epilepsy. He thought this substantiated fully the position he had taken with regard to the general incurability of epilepsy. He had had no idea of establishing a pathology for epilepsy. He certainly regarded, and believed most neurologists regarded, the Jacksonian cases as organic. The same sources of irritation which gave rise to epileptic attacks were present constantly in other individuals, and hence, there was something else in epileptics. He believed in epileptic persons there was,

in addition to the toxemia, some underlying defect, as Dr. Dana had said. It was certainly very important to study epileptics in the intervals of the attacks, and when not under medicinal treatment; he had done this frequently, and believed it was being constantly done by others.

CORRESPONDENCE.

A MEETING IN BALTIMORE TO DISCUSS THE TUBERCULOSIS CONGRESS SITUATION.

To the Editor of the MEDICAL NEWS:

On January 28, 1904, at 8.15 P.M., there will be held in Baltimore, at McCoy Hall of the Johns Hopkins University, under the auspices of the Maryland Tuberculosis Commission, an informal meeting of American physicians and hygienists interested in the tuberculosis problem of this country. The object of the meeting will be to form a national committee to represent the American medical profession at the International Congress on Tuberculosis to be held in Paris in 1905. There will also be a free discussion of the announced Congress on Tuberculosis in St. Louis under the leadership of Mr. Clark Bell, and the other tuberculosis congress to be held in Washington in 1905 under the leadership of Dr. Daniel Lewis, or as it is now called "The American Anti-Tuberculosis League." It is to be hoped that the deliberations at this meeting will result in an understanding between all parties concerned, and that all individualism and partisanship will be supplanted by true love to humanity, by genuine scientific and practical methods, and by the highest professional motives. If it is the unanimous opinion of the medical profession that there should be an American Congress on Tuberculosis previous to the one which is to meet in Paris next year, it should be thoroughly representative and an honor to the American medical profession.

Professor Wm. H. Welch of Johns Hopkins has kindly consented to preside. All communications relating to this meeting should be addressed to the Secretary *pro tem*, Dr. H. Barton Jacobs, 11 Mount Vernon Place, Baltimore, Md.

[Those of the readers of the MEDICAL NEWS who are not yet familiar with the present tuberculosis congress situation in America we beg leave to refer to an open letter by Dr. S. A. Knopf of this city, entitled "American and International Tuberculosis Congresses and Tuberculosis Exhibits for the years 1904 and 1905," which appeared in the News of December 5, 1903.—Ed.]

BOOK REVIEWS.

A TEXT-BOOK OF OPERATIVE SURGERY. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Written for Students and Practitioners. By WARREN STONE BICKHAM, Phar. M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Octavo, 984 pages, with 559 illustrations, entirely original. W. B. Saunders & Co., New York, Philadelphia and London.

THIS is undoubtedly one of the important books of the year and both its author and publisher are to be congratulated on its appearance. A large meed of praise is due, however, to Miss Eleanora Fry, who drew all of the extremely numerous illustrations. The value of books of this sort depends largely on the character of the illustrations, for one glance at a skillfully pre-

pared drawing will do more toward refreshing the memory or making clear an unfamiliar form of technique, as an intestinal suture, for example, than the perusal of pages of letter press. In this instance the artist's work has been done with unusual care and the result has been signally successful.

Even the very few borrowed pictures have been entirely redrawn and brought into harmony with the others, so that the entire series is uniform and gives an impression of homogeneity very different from the usual indiscriminate hodge-podge of cuts, where all epochs of surgical development and degrees of draughtsmanship are huddled side by side. The text, however, is fully worthy of all the artistic embellishment possible and is arranged with a system, an economy of verbiage and a clearness of expression that leaves nothing to be desired. It is fully modern in all its phases and the author's experience in Tulane University has enabled him to describe numerous procedures not commonly practiced in this part of the country. Among these are several of the ingenious devices of Matas, a surgeon whose work is not as well known in the North as it should be. Pfannenstiel's suprapubic incision is described, for the first time, we believe, in an American text-book, but we think that Crile's method of clamping the carotids during neck operations might be included in the section on "Temporary Ligation of Arteries" and we miss an account of the Connell-Turk modification of the Maunsell suture of the intestine. The mechanical make-up of the volume is in keeping with the text and adds its part to the production of what is without doubt the finest single volume operative surgery we at present possess.

A TEXT-BOOK OF THE DISEASES OF WOMEN. By THOMAS A. ASHBY, M.D., Professor of Diseases of Women in the University of Maryland; Consulting Gynecologist to the Mount Hope Asylum, etc. With 233 illustrations. Williams & Wilkins Company, Baltimore.

The only criticism that can be raised against this volume is that it comes into a field already crowded, without any very evident reason for its existence. It is a well put together, well-arranged, and, for the most part, well-illustrated book, which covers its field adequately and presents its subject-matter in a way attractive for students and authoritative for older men. The description and plates of Connell and Turk's modification of Maunsell's method of end-to-end anastomosis of the intestine here makes its first appearance, we believe, in a text-book.

A TEXT-BOOK OF CLINICAL ANATOMY. For Students and Practitioners. By DANIEL N. EISENDRATH, A.B., M.D., Clinical Professor of Anatomy in the Medical Department of the University of Illinois (College of Physicians and Surgeons); Attending Surgeon to the Cook County Hospital, Chicago, etc. Octavo, 515 pages. Illustrated with 153 illustrations, a number in colors. W. B. Saunders & Co., New York, Philadelphia and London.

The teaching of anatomy as usually done in our medical schools is deficient in that it is not sufficiently topographical in its nature. In taking up the bones, vascular system, muscles, etc., in groups, and considering them in this, the customary way, the student loses sight of all perspective and does not sufficiently correlate the knowledge he has been acquiring in sections. It is this defect the author has endeavored to bridge over by making his discussion of the subject purely regional, together with a completely new set of illustrations. These consist of photographs of living models on whom the various structures, superficial and deep, of medical and

surgical importance are traced in their relations to each other, and the surface landmarks. The idea is excellently carried out and the text is equally original, so that the subject is given a freshness and interest likely to make it attractive both to the student and graduate.

SURGICAL DISEASES OF THE ABDOMEN, WITH SPECIAL REFERENCE TO DIAGNOSIS. By RICHARD DOUGLAS, M.D., formerly Professor of Gynecology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville; Ex-President of the Southern Surgical and Gynecological Association, etc. P. Blakiston's Son & Co., Philadelphia.

In this eminently scientific work the physical diagnosis of abdominal conditions is discussed with an elaborateness probably never before attempted. But little attention is paid to operative technique or methods, the proper surgical procedure in each case being simply indicated, though occasional discussions on open questions involving the operative treatment and after-management are interpolated. The entire domain of the abdomen is covered in about one hundred sections devoted to the diseases and injuries of the various organs which in every case embody thoroughly modern and thoughtful views of the subjects in question. Gynecological conditions whose manifestations are chiefly abdominal are discussed with the exception of inflammatory lesions of the tubes, the rationale of which omission is not apparent. The various forms of internal hernia receive adequate treatment, but the subject of strangulation of external hernia, which also would seem to fall within the limits of a work on abdominal diagnosis is not elaborated.

The plates are well chosen and of an order of execution comporting well with the entire tone of the work, which both scholastically and mechanically is of the highest rank. It is essentially the outcome of the great advances which abdominal surgery has made within the past decade, and should command the attention of the profession everywhere.

A TEXT-BOOK OF DISEASES OF WOMEN. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospitals. 8vo, 675 pages. Illustrated with 650 original illustrations, many in colors. W. B. Saunders & Co., New York, Philadelphia and London.

The appearance of this book will be welcomed by those who are familiar with the author's writings on obstetrics. In many respects, particularly in the number and beauty of the illustrations, it is a companion volume to the Text-book of Obstetrics. The same breadth of scope and thoroughness of treatment are present to a notable degree, and an agreeable style enlivened by many citations of personal experiences makes it enjoyable reading. An especially commendable feature is the unusually large number of illustrations devoted to microphotographs of pathological specimens, which are so clearly described as to be of real value. Office treatment is given a due amount of consideration, so that the work will be as useful to the non-operator as to the specialist, while the latter will find abundant food for thought in the section devoted to operative technique. Many innovations are contained in this, such as a new method of etherization, the use of Downe's electrohemostatic clamps, a new method of employing rubber dam as a covering for the patient's abdomen during laparotomies, etc. In short, the book is an important addition to the already long list of gynecologies and deserves the consideration of all interested in this branch of surgery.